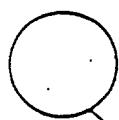
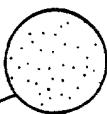


FIG. 1



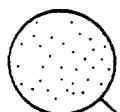
[ SEQ. ID NO: 3]

X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C  
5' 3'

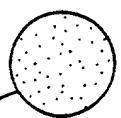


G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X  
3' 5'

[ SEQ. ID NO: 4]



X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C



G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X

FIG.2

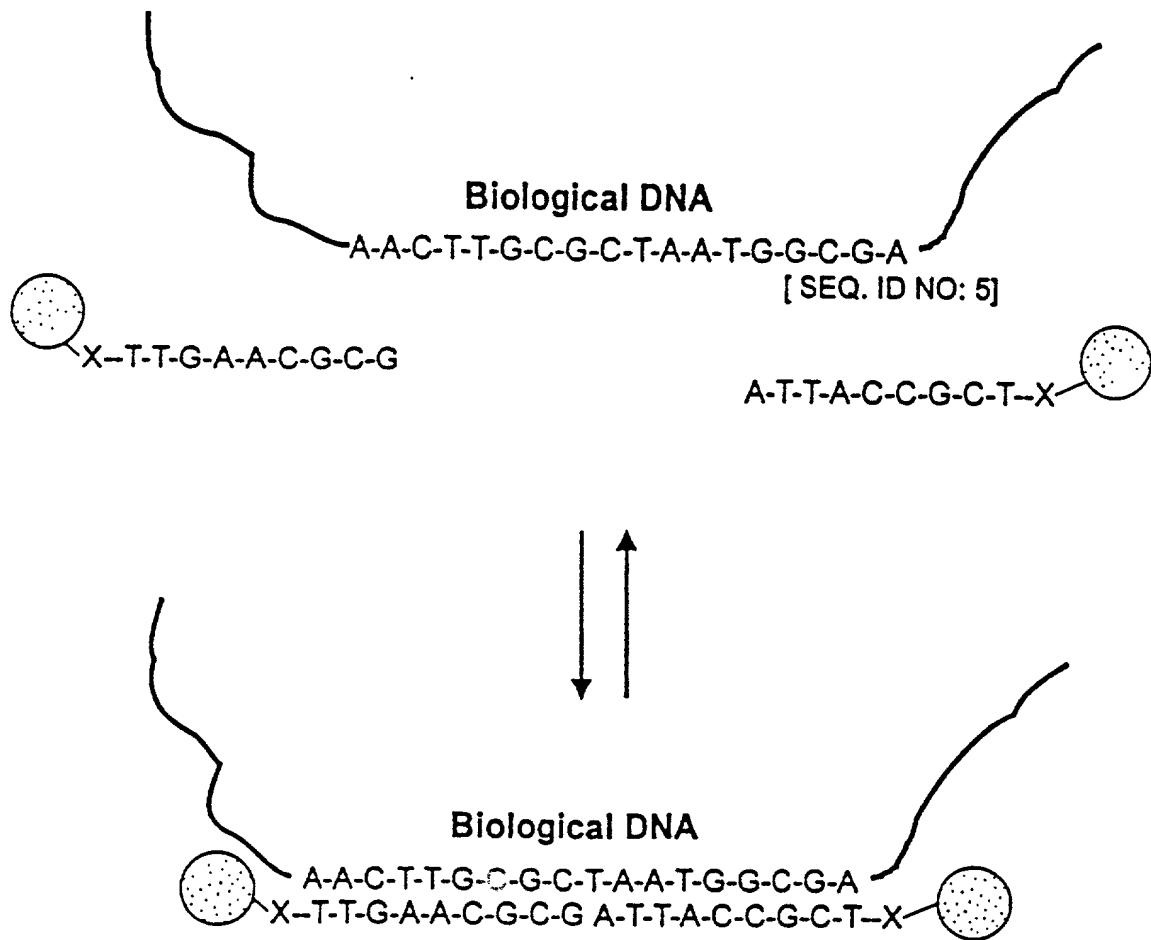


FIG.3

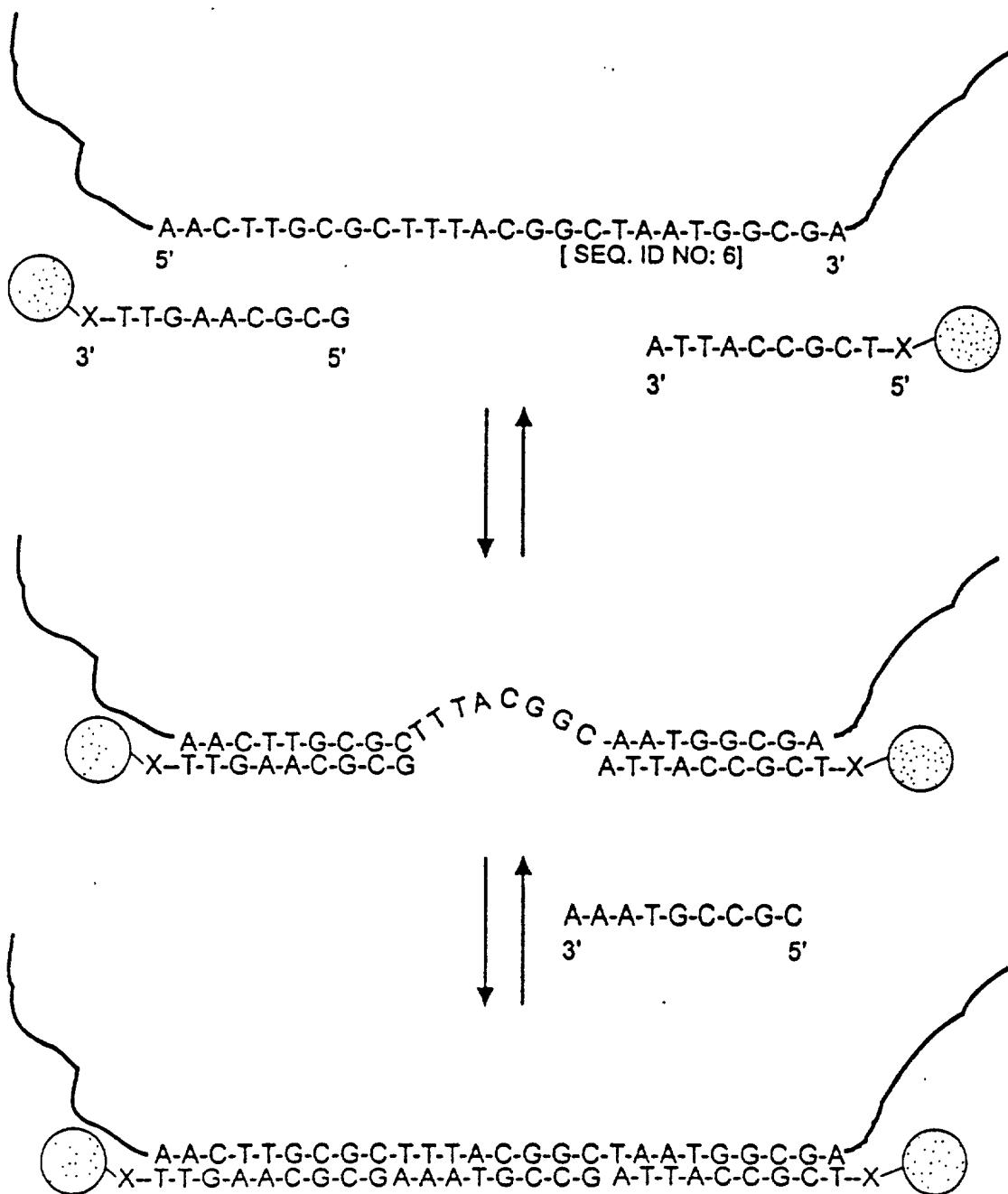


FIG. 4

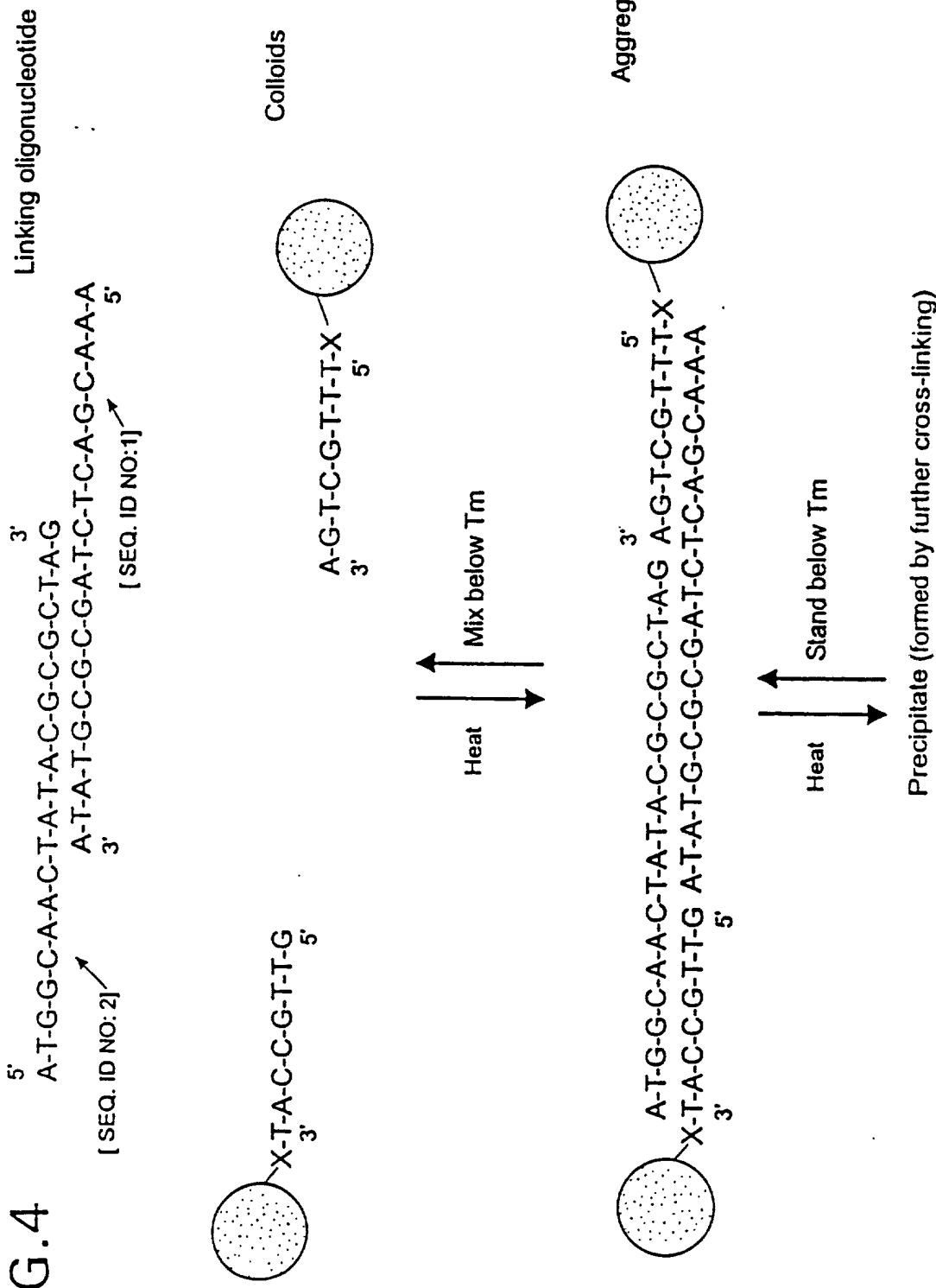


FIG.5

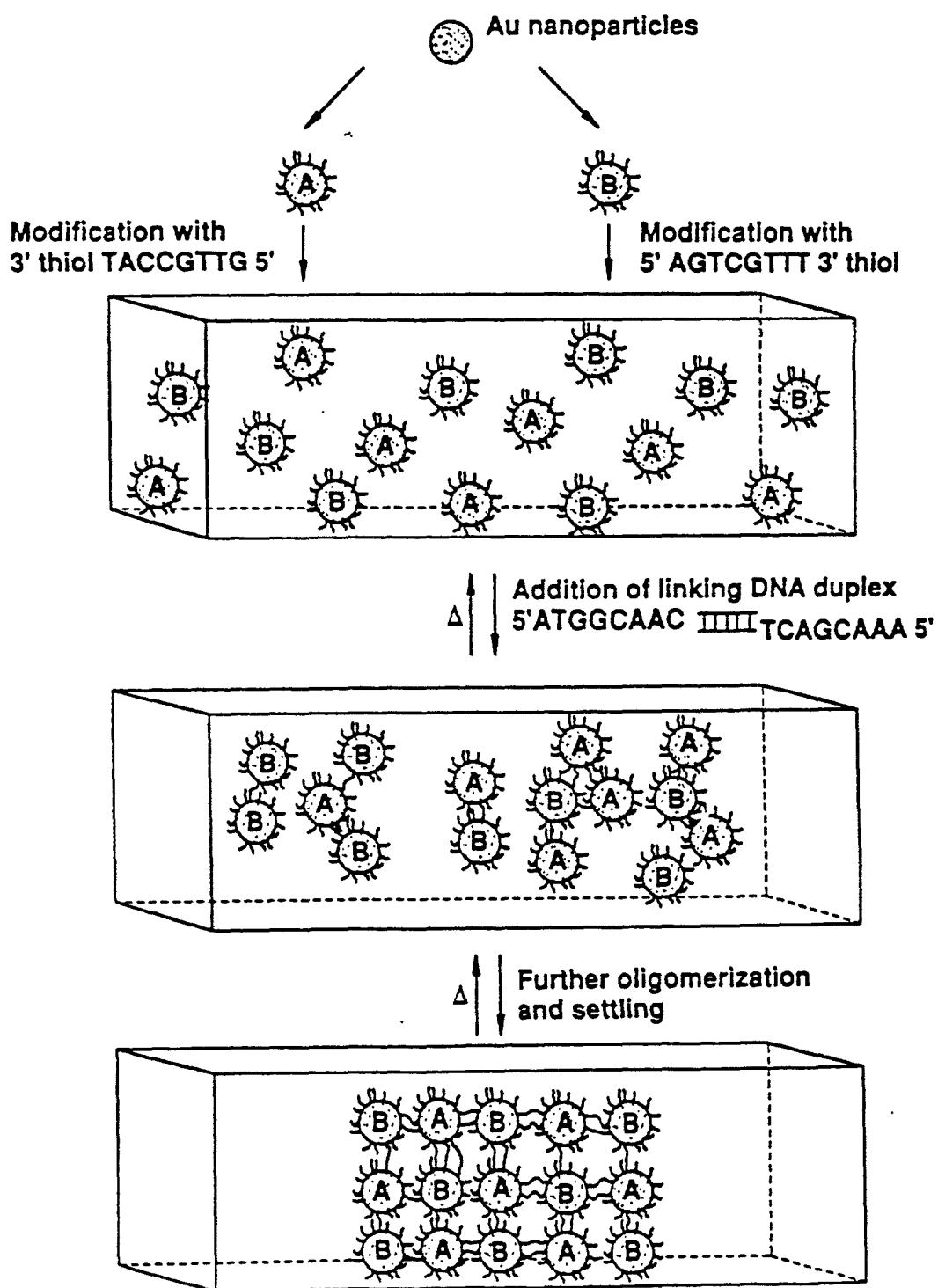




FIG. 6A FIG. 6B FIG. 6C

FIG. 7

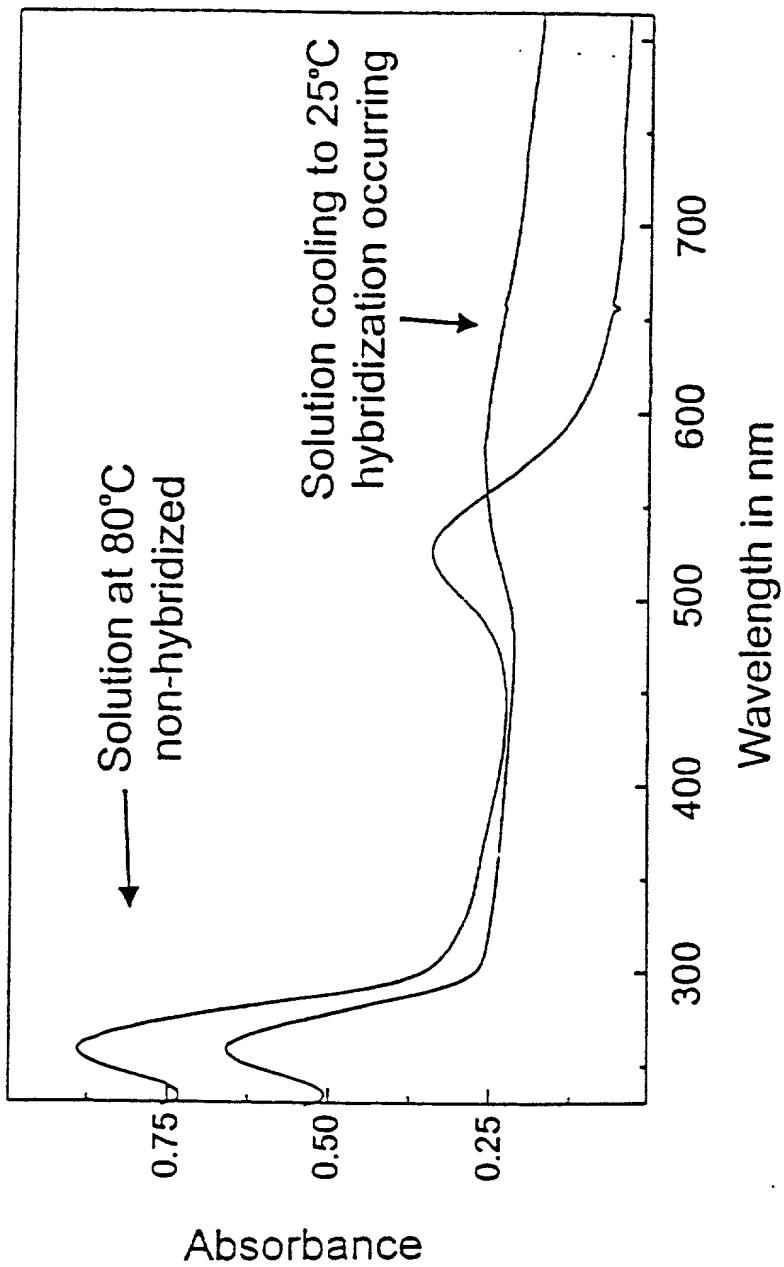


FIG. 8A

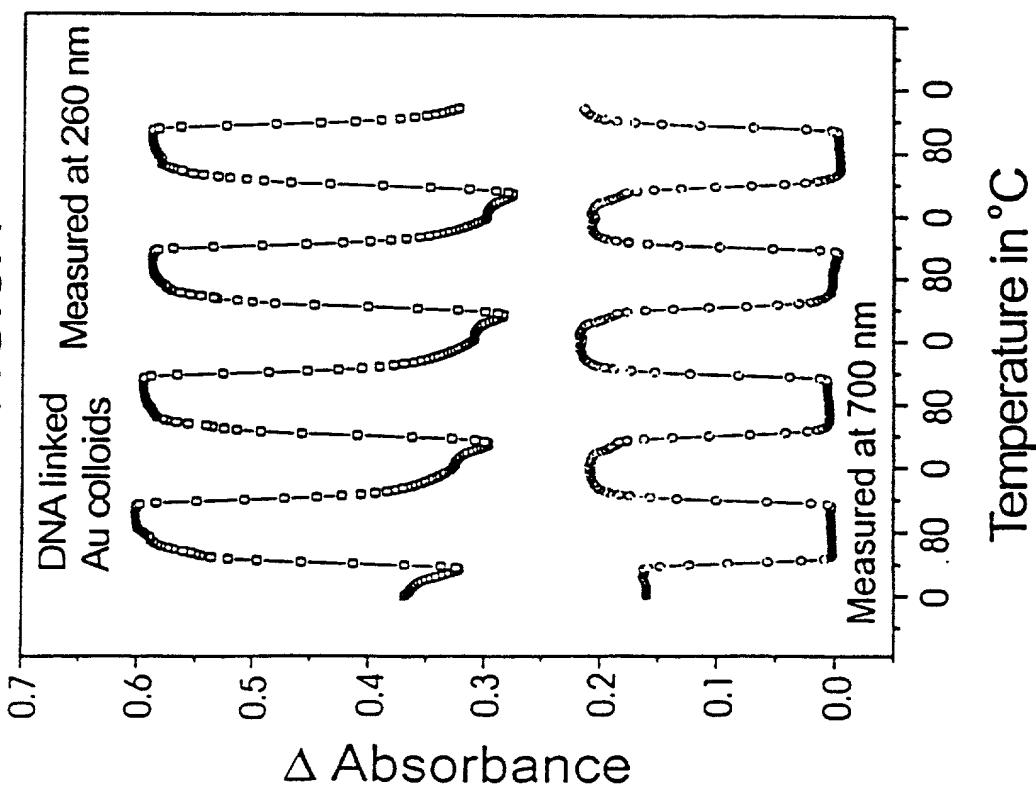


FIG. 8B

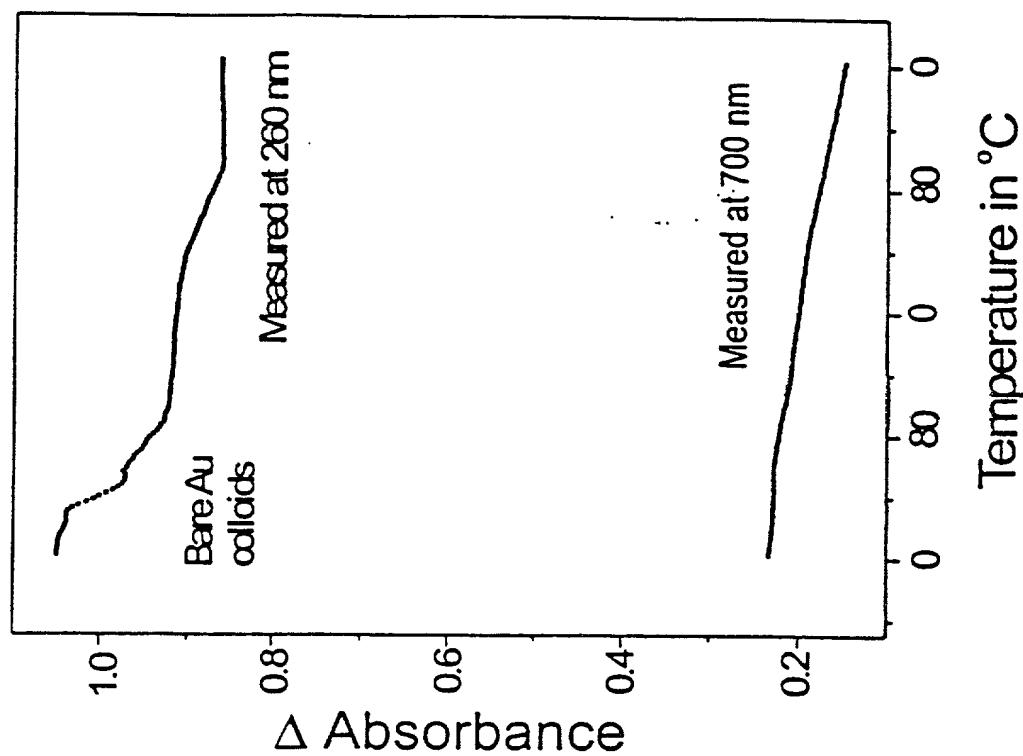




FIG.9A

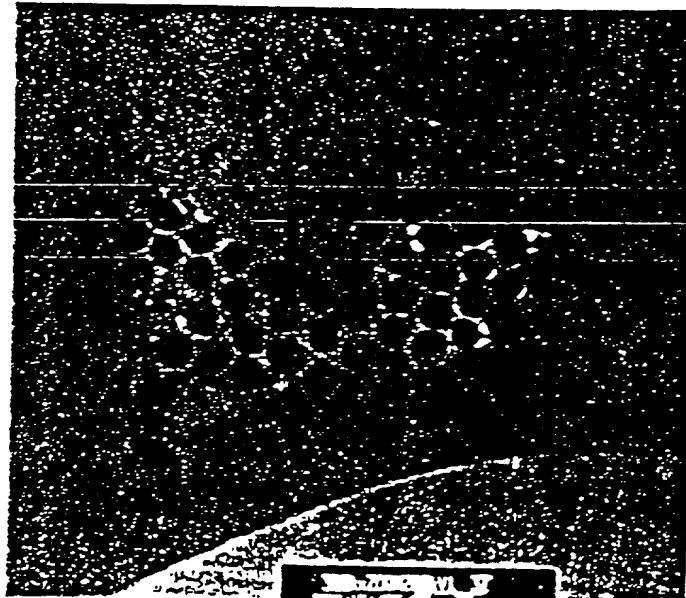


FIG.9B

FIG.10

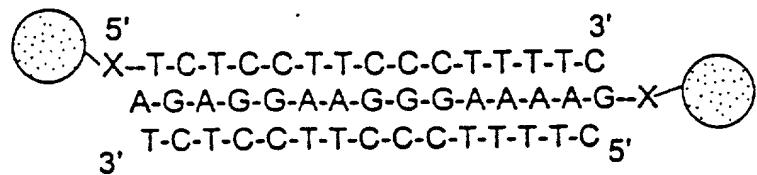
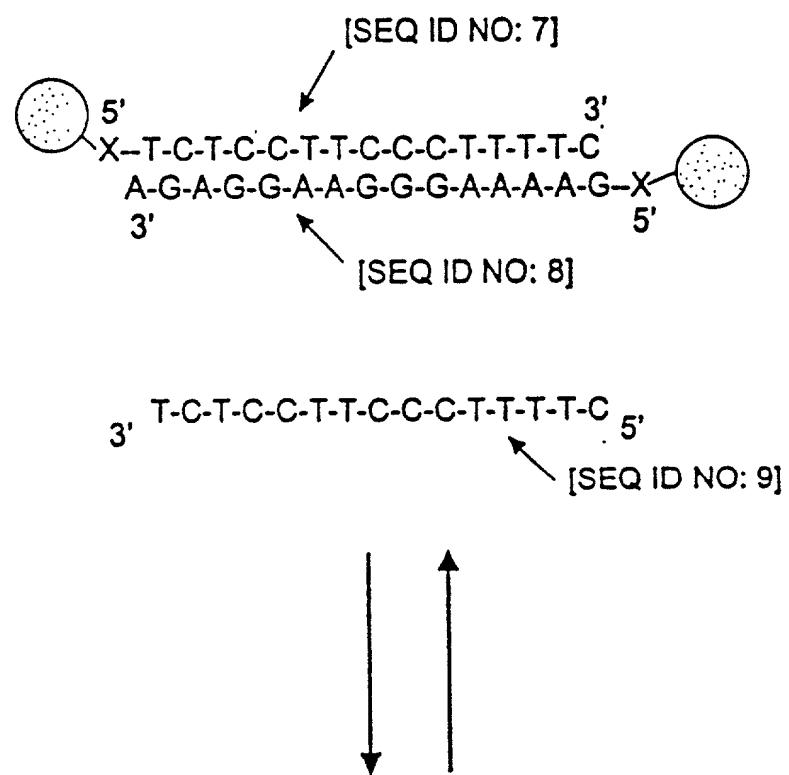
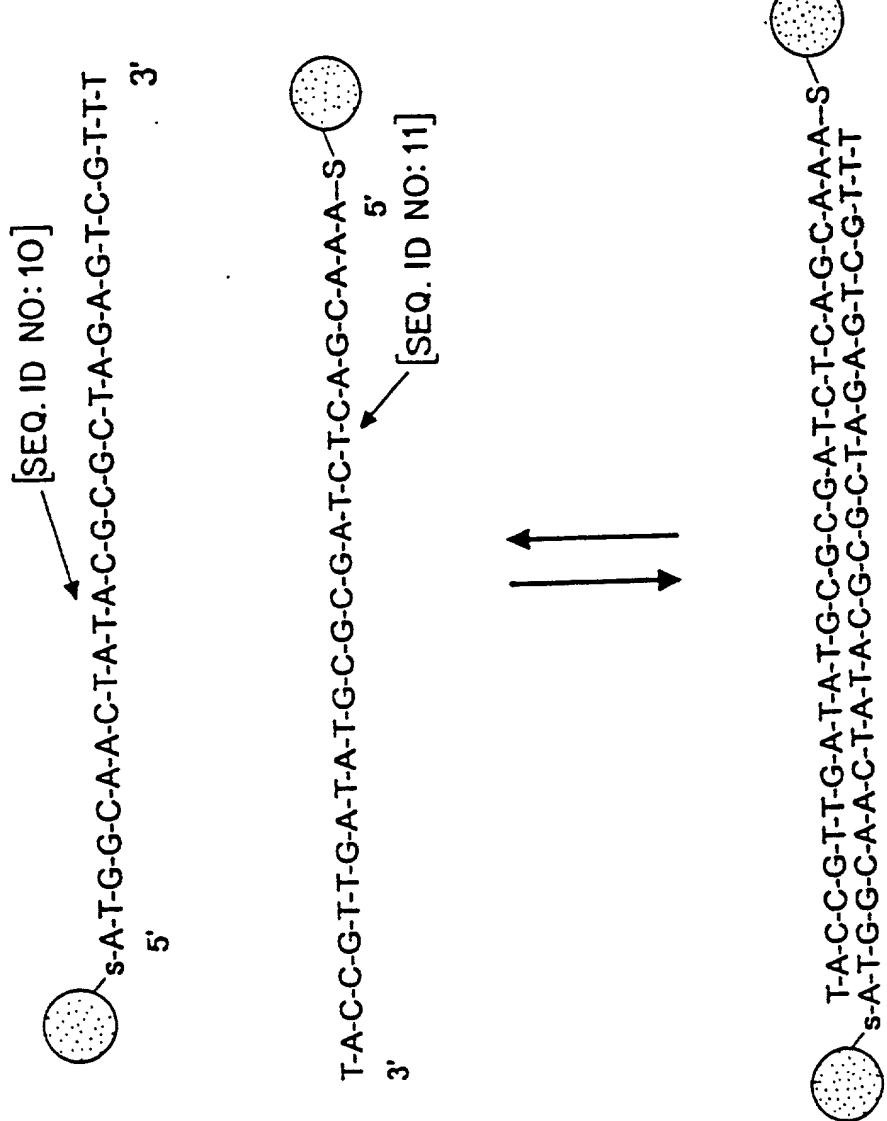


FIG. 11



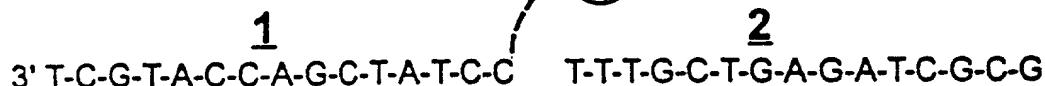
**FIG. 12A**

Complementary Target



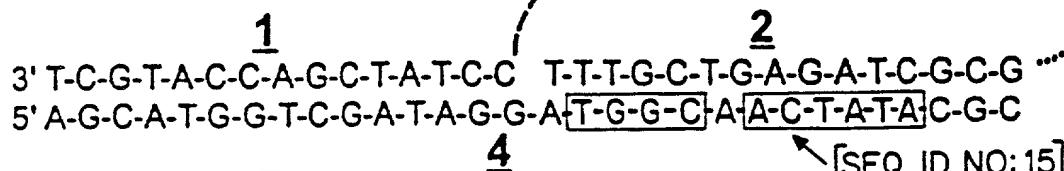
**FIG. 12B**

Probes without Target



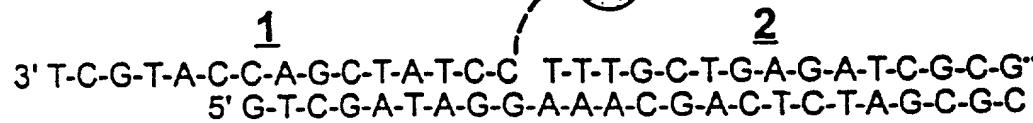
**FIG. 12C**

Half Complementary Target



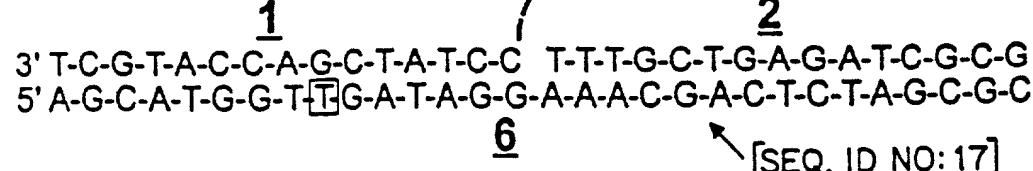
**FIG. 12D**

Target - 6 bp



**FIG. 12E**

One bp Mismatch



**FIG. 12F**

Two bp Mismatch

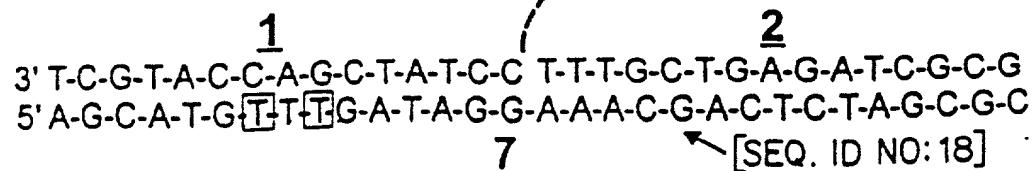


FIG.13A

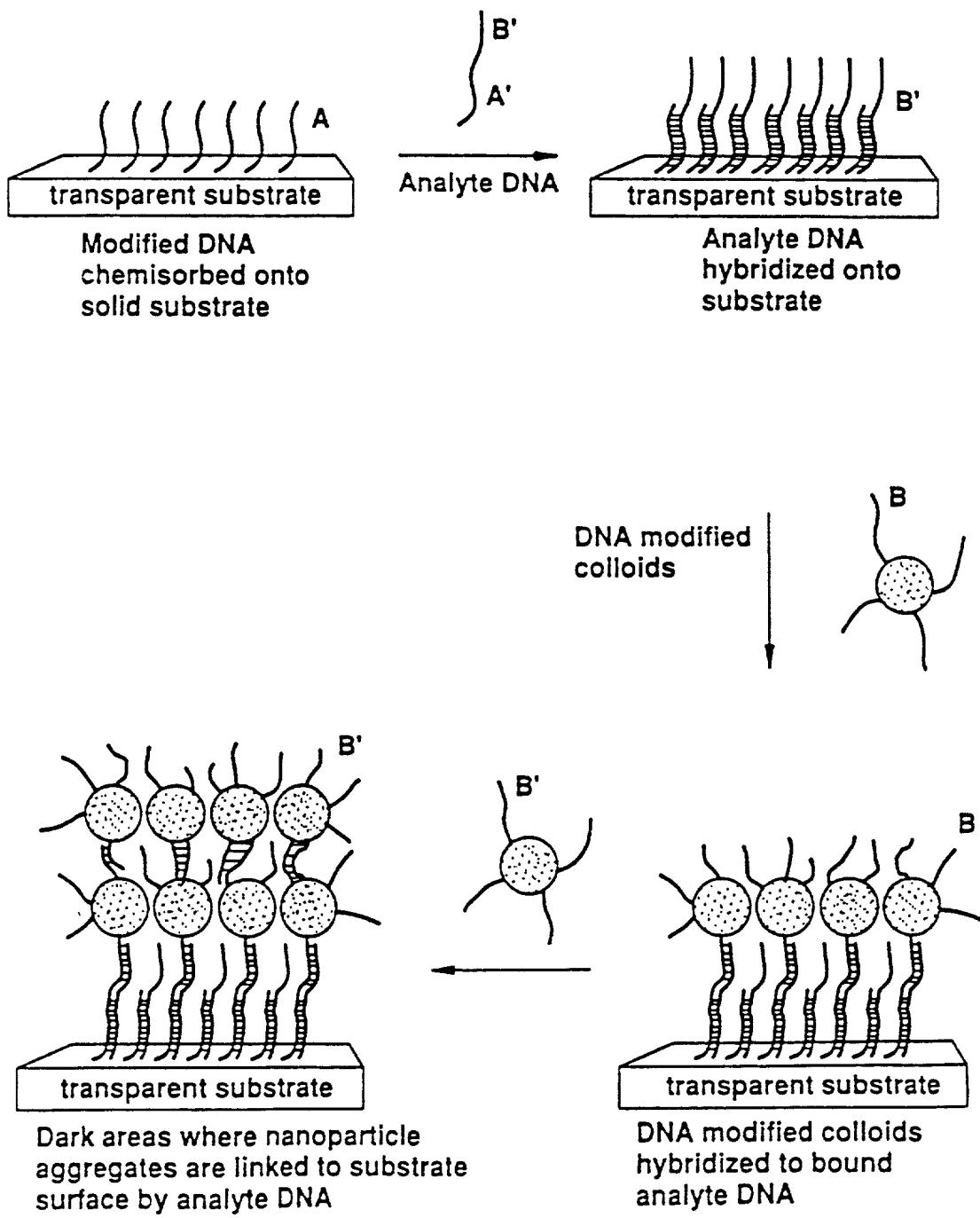


FIG. 13B

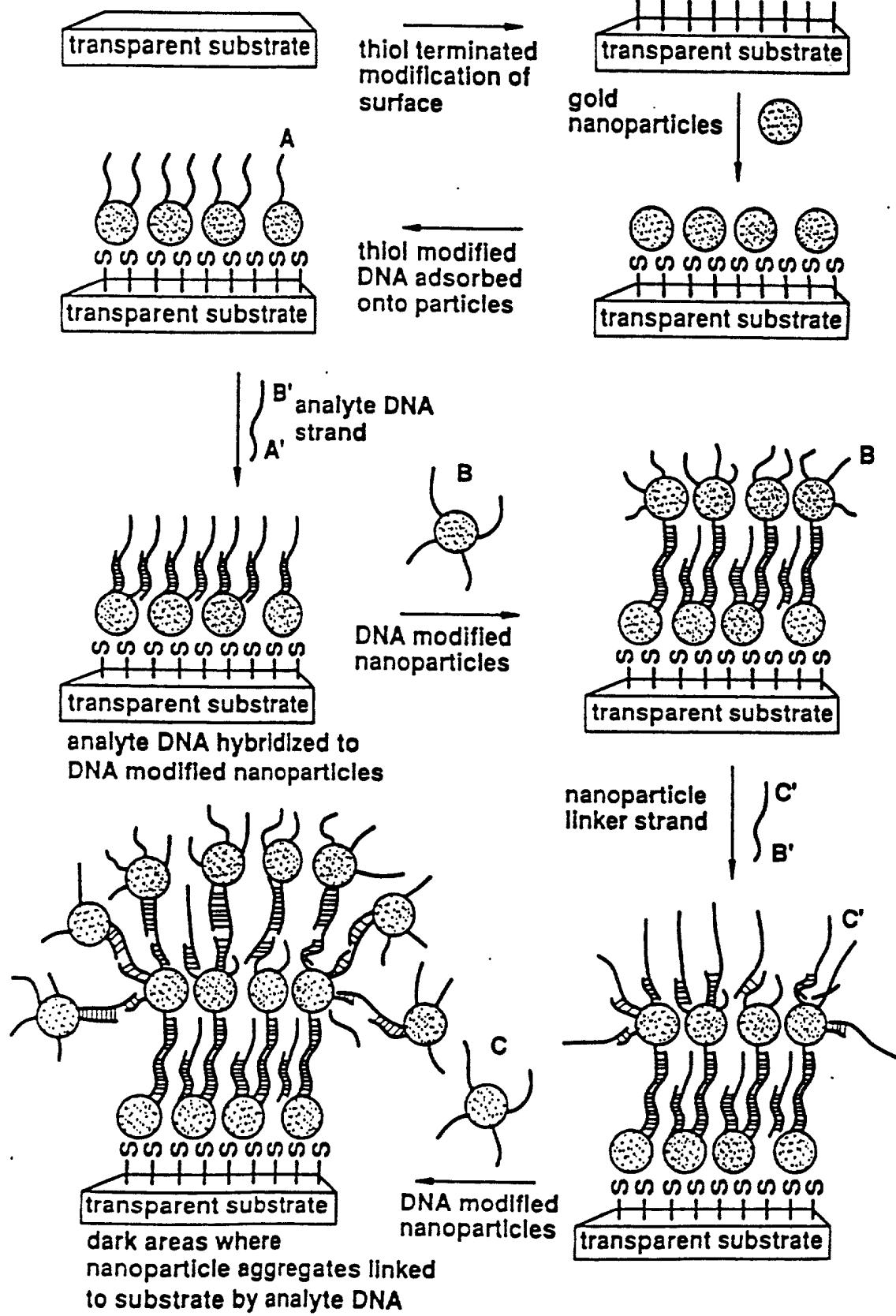


FIG.14A

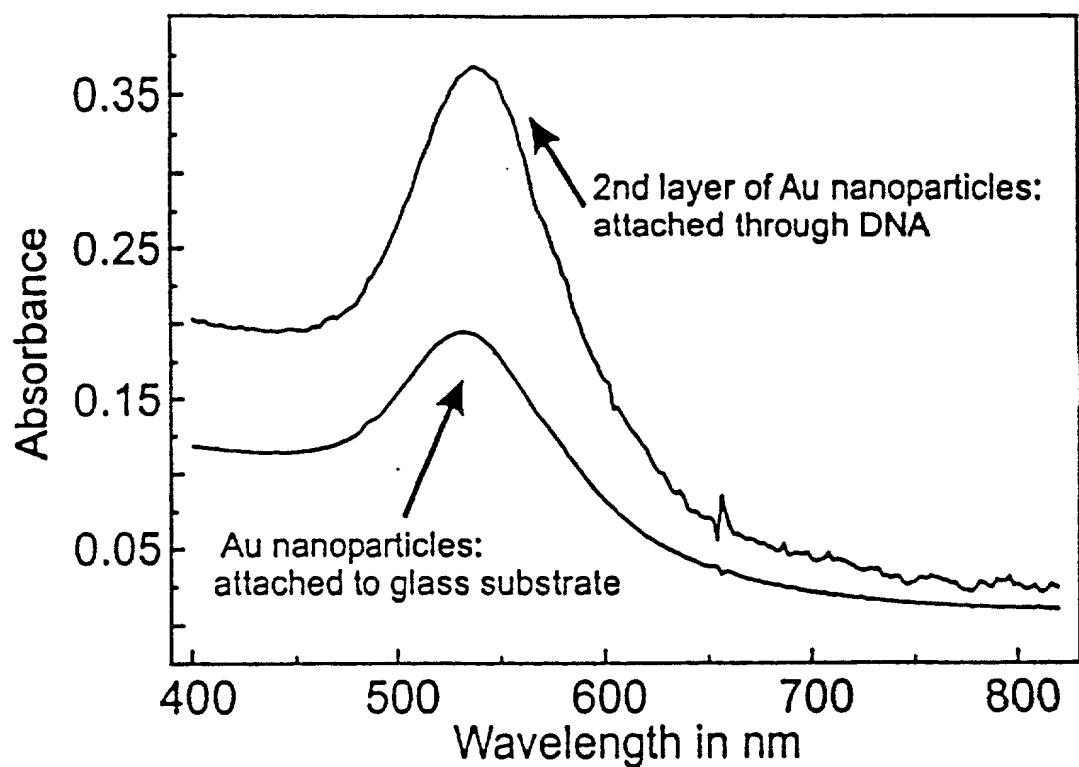
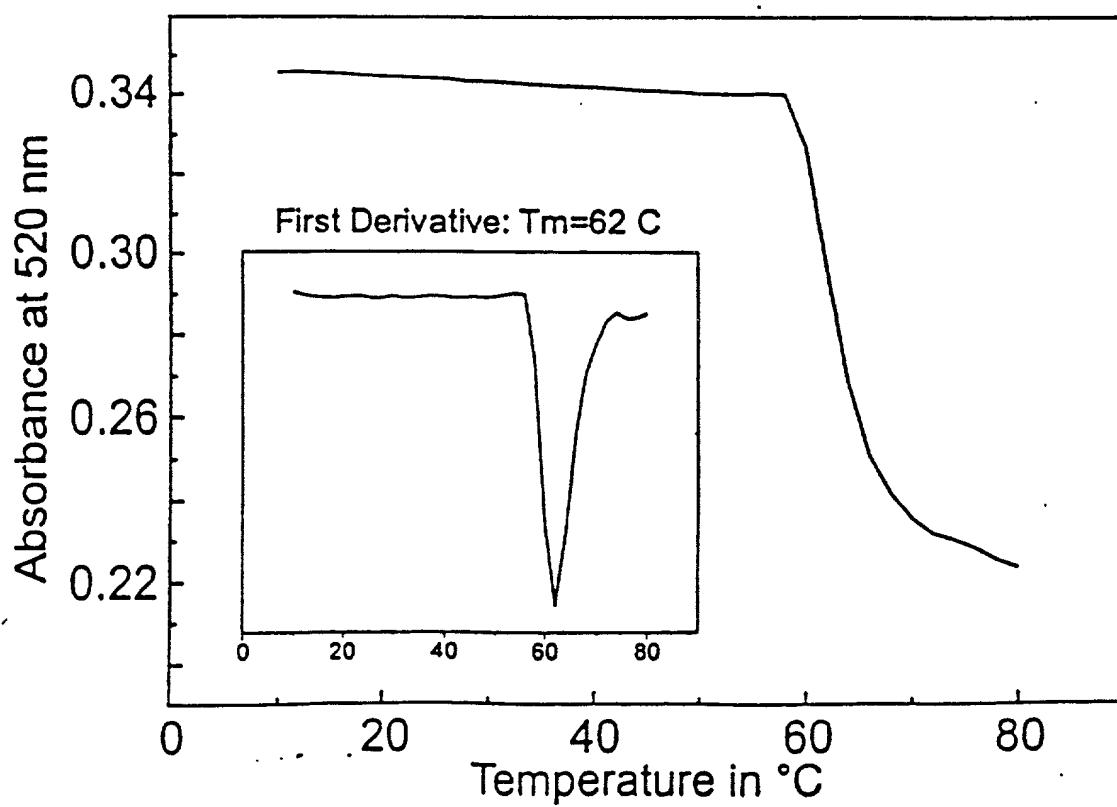
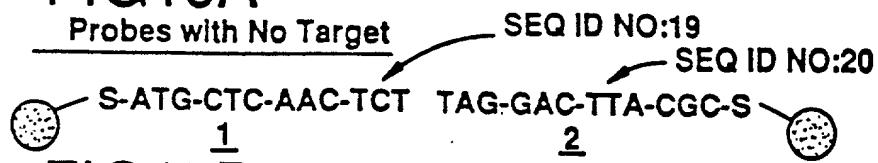


FIG.14B



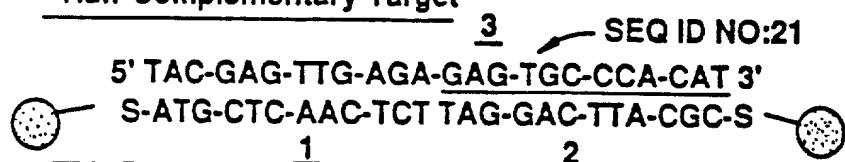
## FIG15A

Probes with No Target



## FIG15B

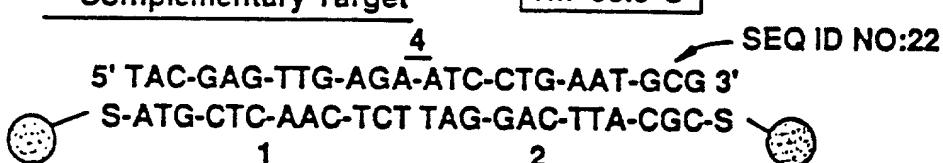
Half-Complementary Target



## FIG15C

Complementary Target

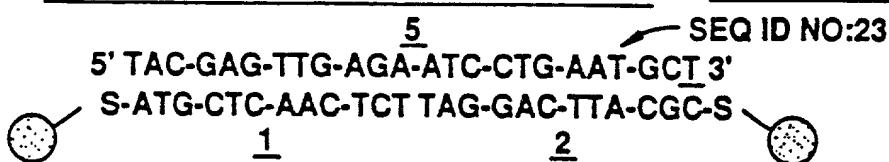
Tm=53.5°C



## FIG15D

ONE Base-Pair Mismatch at Probe Head

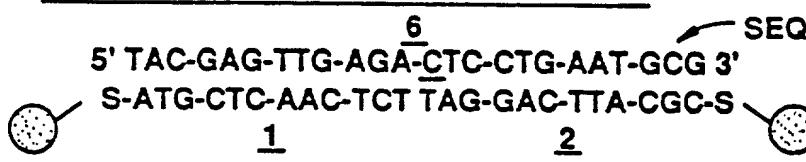
Tm=50.4°C



## FIG15E

ONE Base-Pair Mismatch at Probe Tail

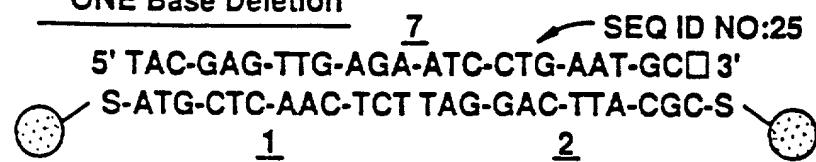
Tm=46.2°C



## FIG15F

ONE Base Deletion

Tm=51.6°C



## FIG15G

ONE Base-Pair Insertion

Tm=50.2°C

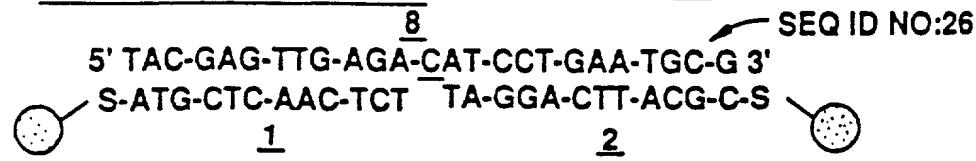


FIG. 16A

24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'  
-S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S -  
1  
2

FIG. 16B

48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'  
-S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S -  
1  
2

FIG. 16C

72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGC-ATC-CTG-AAT-GCG 3'  
-S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-CGC-S -  
1  
2

FIG. 17A

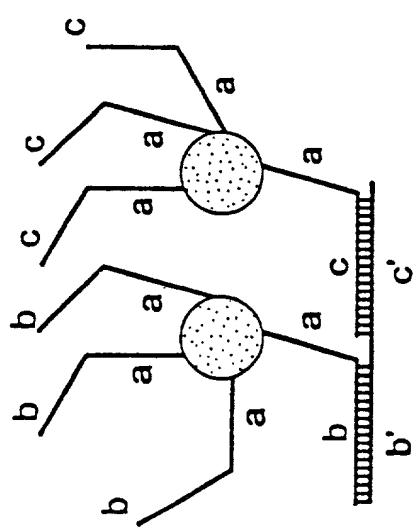


FIG. 17B

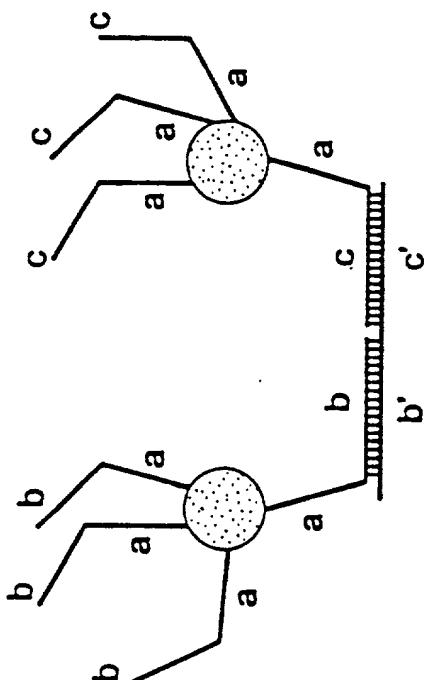


FIG. 17C

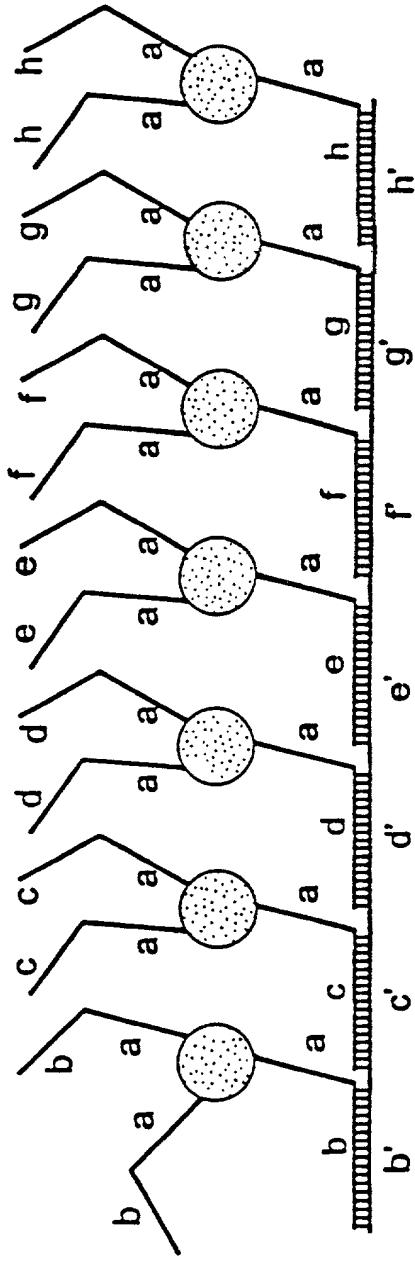


FIG. 17D

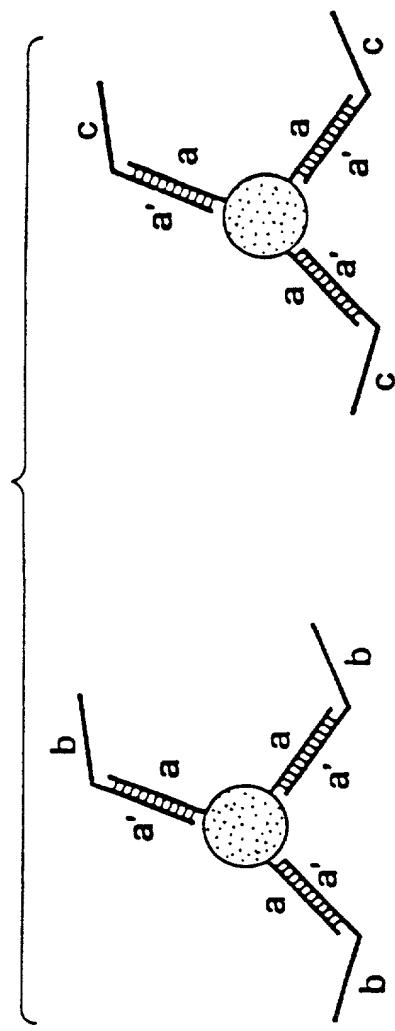


FIG. 17E

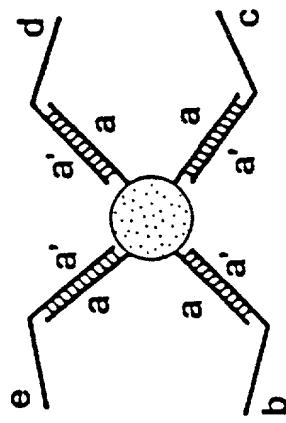


FIG. 18

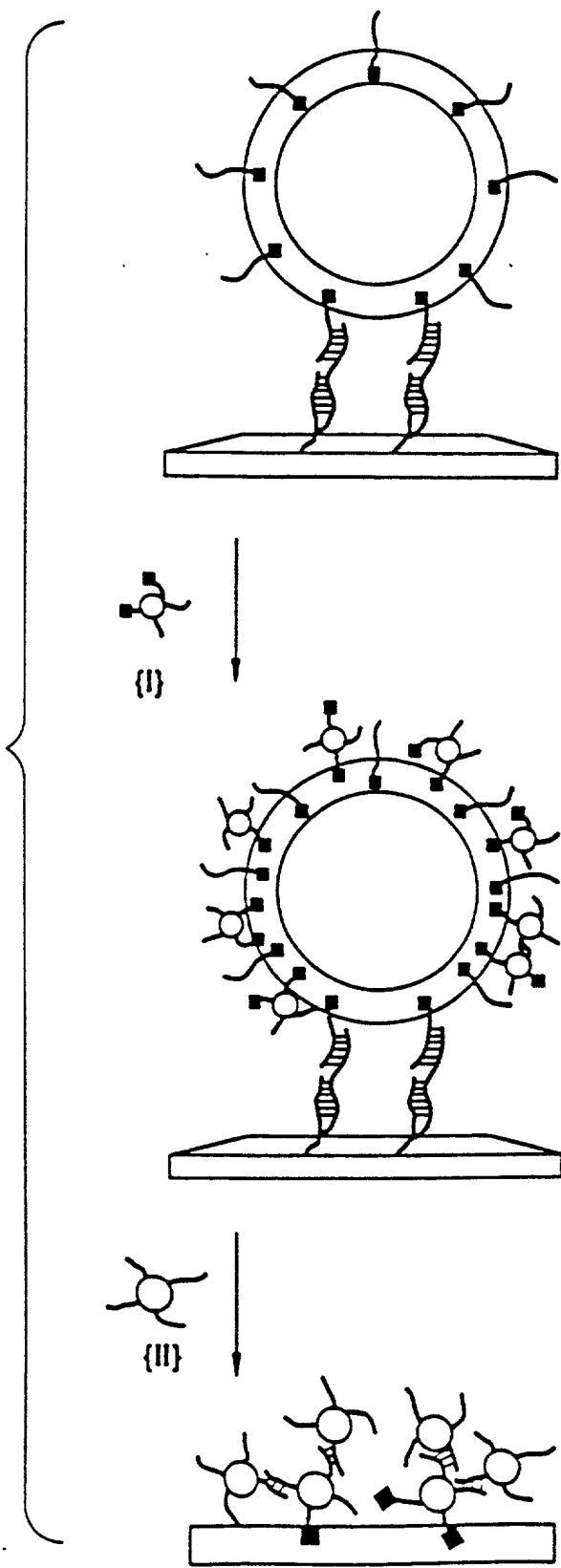


FIG.19A

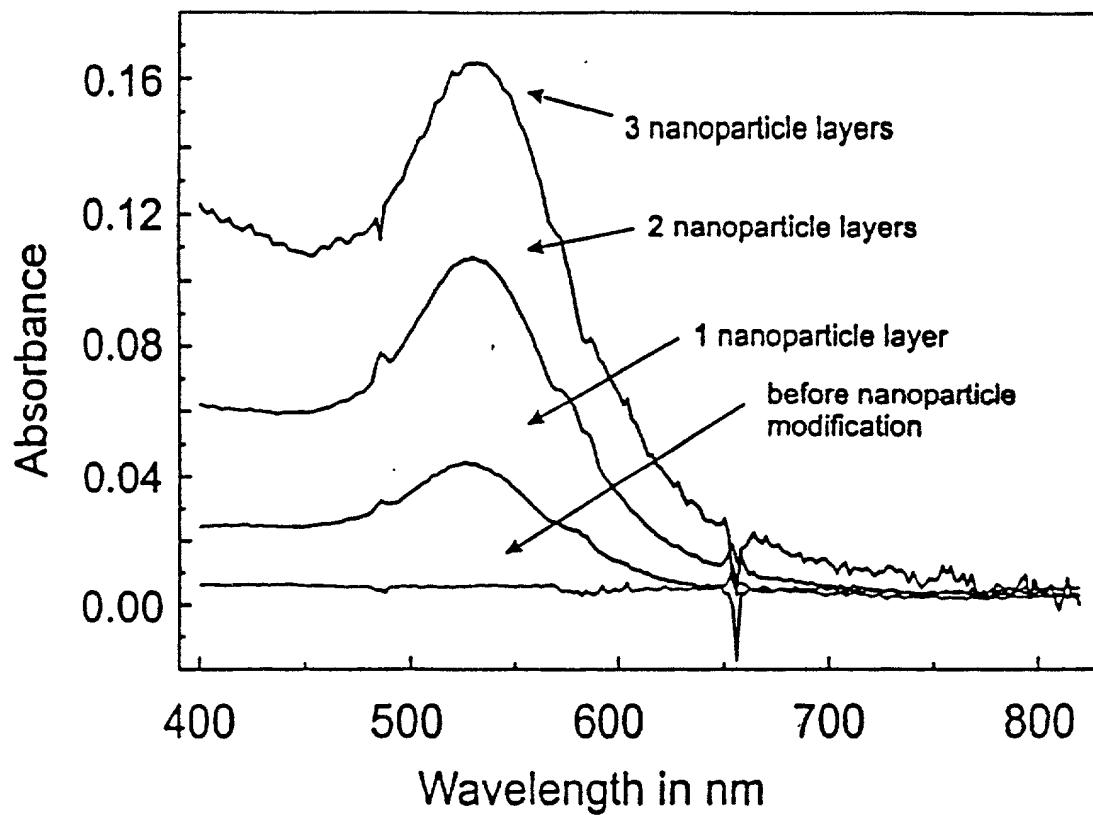


FIG.19B

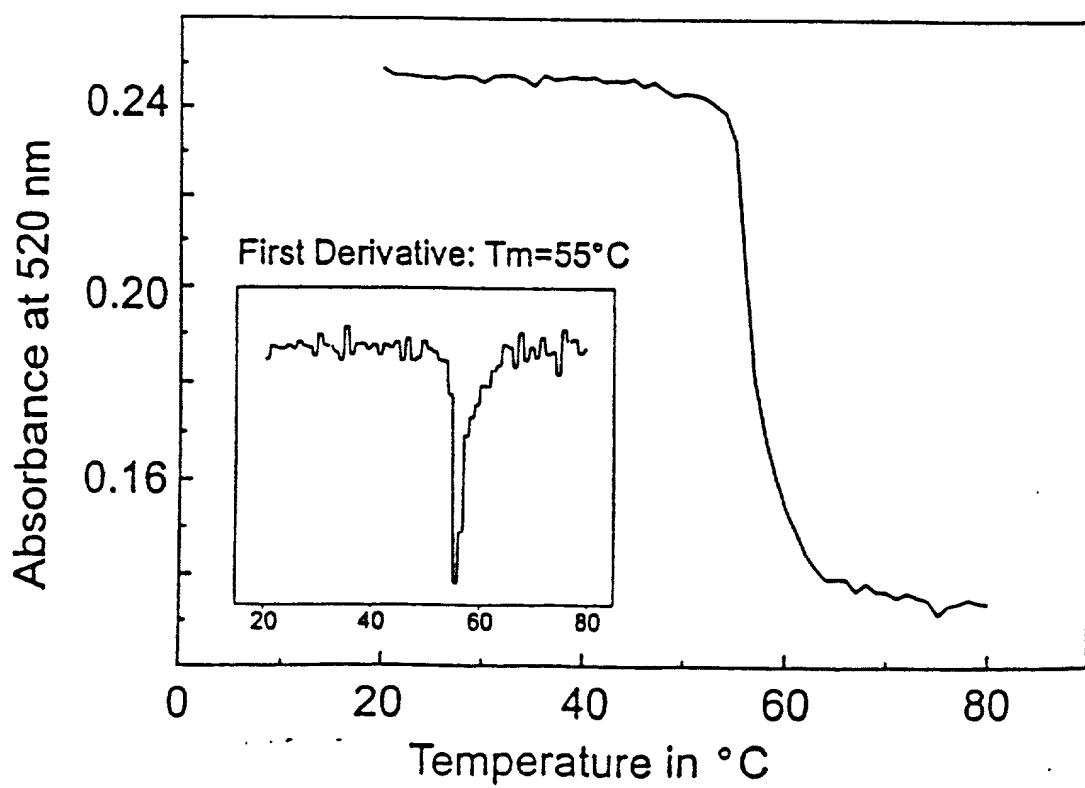


FIG.20A

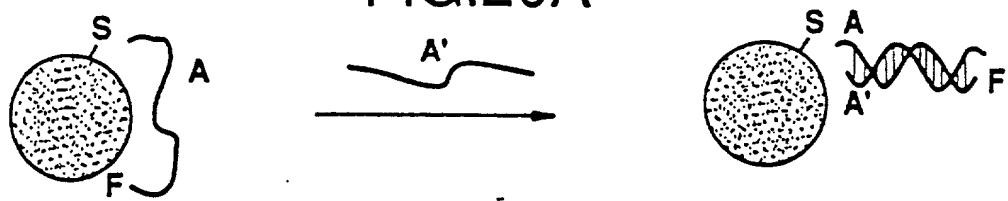
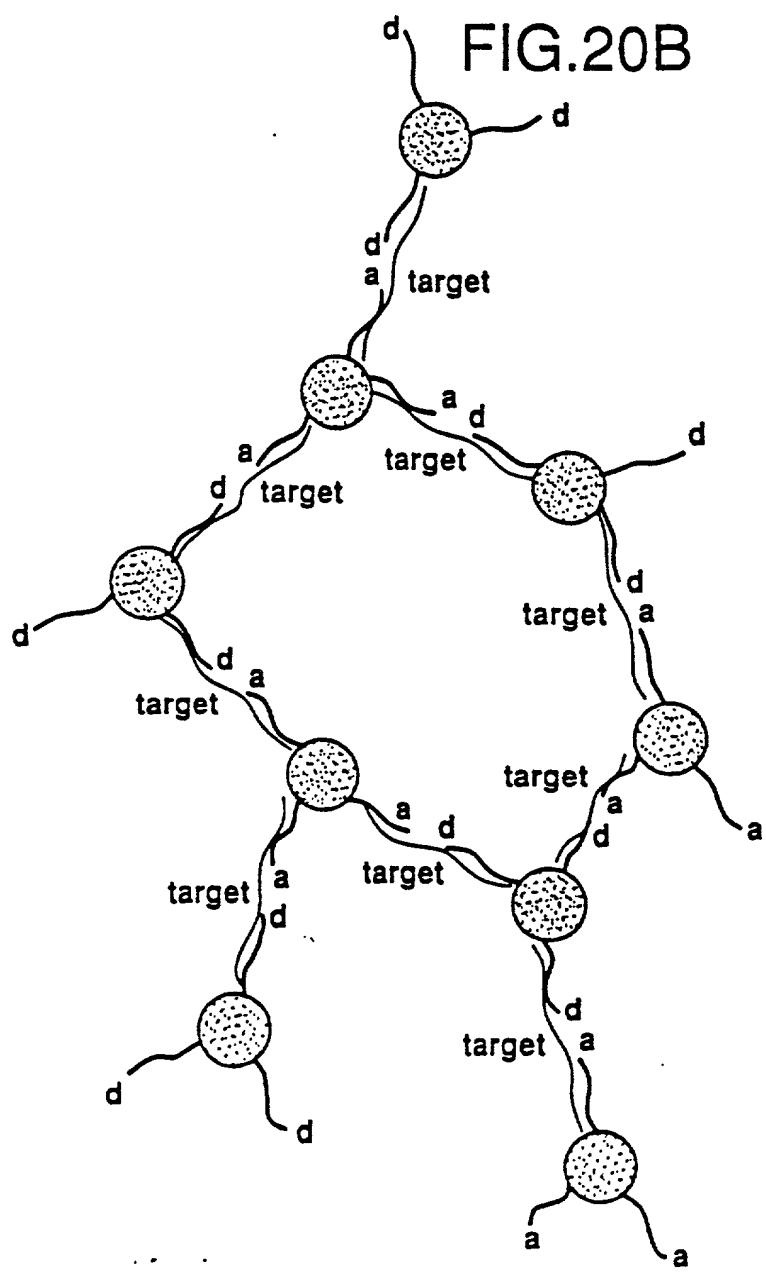


FIG.20B



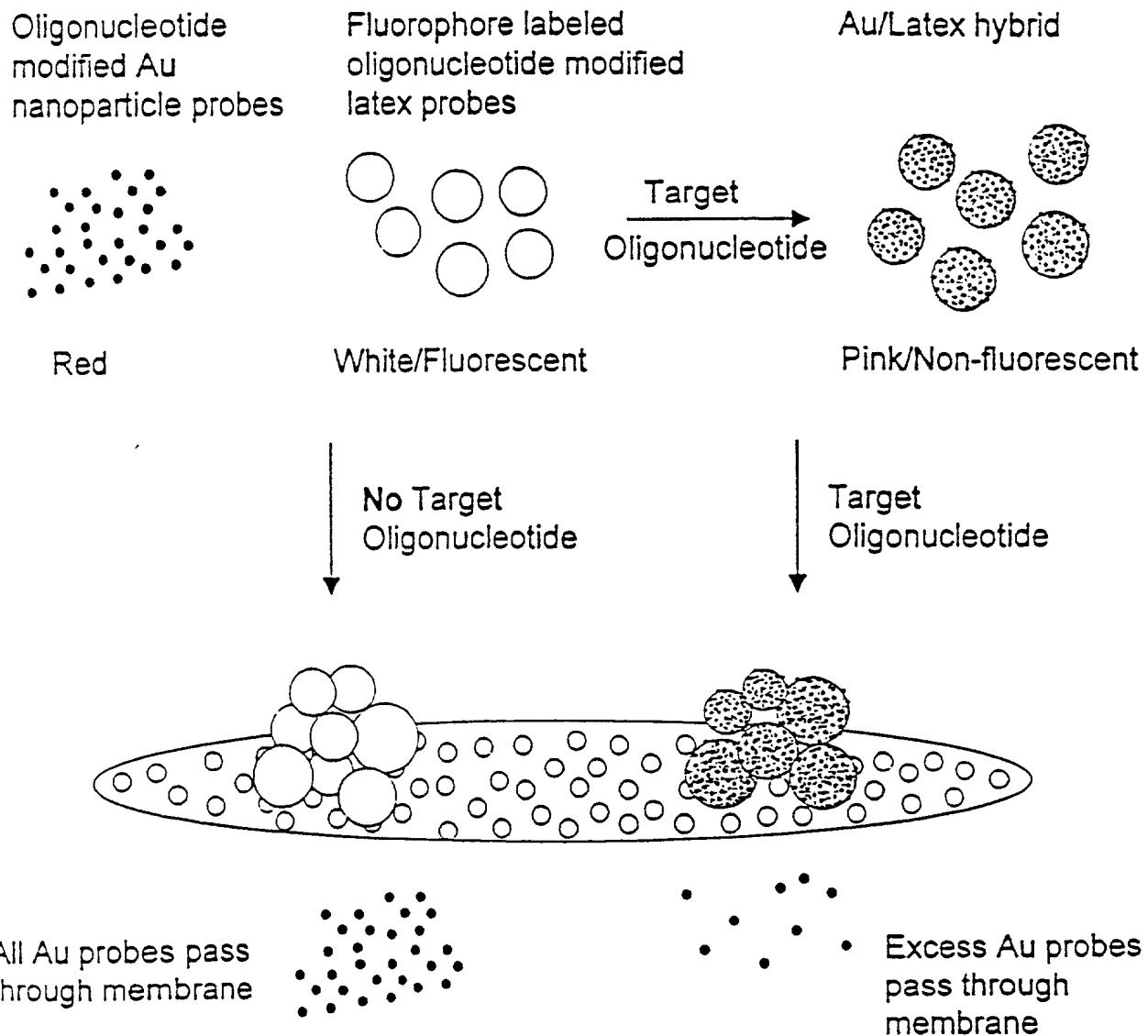
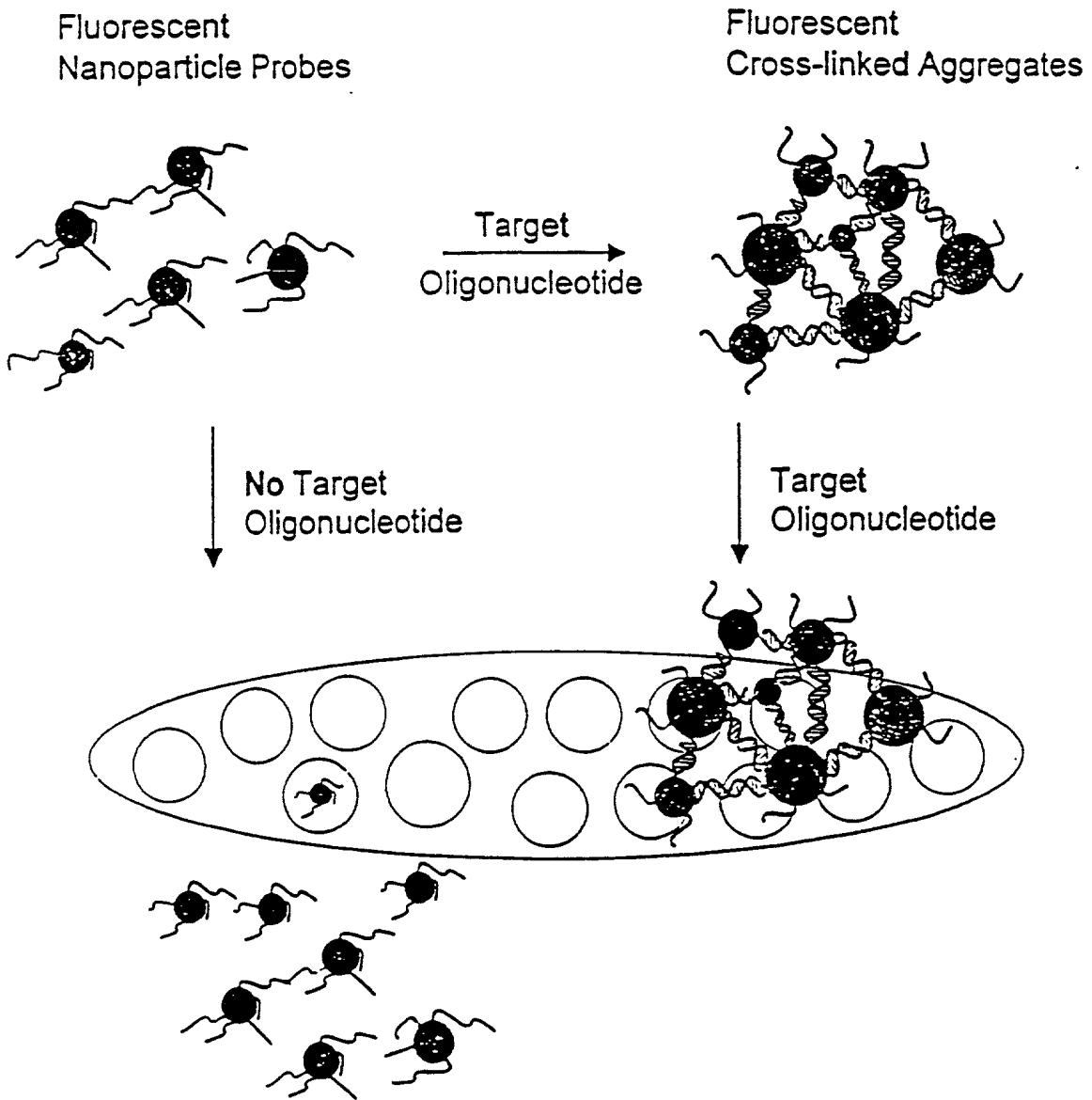


FIGURE 21

FIGURE 22

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The fluorescent nanoparticle probes pass through the membrane

The fluorescent cross-linked aggregates are retained by the membrane

## Anthrax PCR Product

5' G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT  
3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT A TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA  
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'  
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

141 mer Anthrax PCR product [SEQ ID NO:36]

3' CTC CCT AAT AAC AAT

[SEQ ID NO:37]

3' TTA TAA CTA TTC CTA

[SEQ ID NO:38]

Oligonucleotide-Nanoparticle Probes

### Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT

[SEQ ID NO:39]

3' A TCT CTT CAT TAA TTA AGC AGT TGT

[SEQ ID NO:40]

3' TAT TCT TTT TAT AAT AGG TCC CAA TAT

[SEQ ID NO:41]

3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

[SEQ ID NO:42]

FIGURE 23

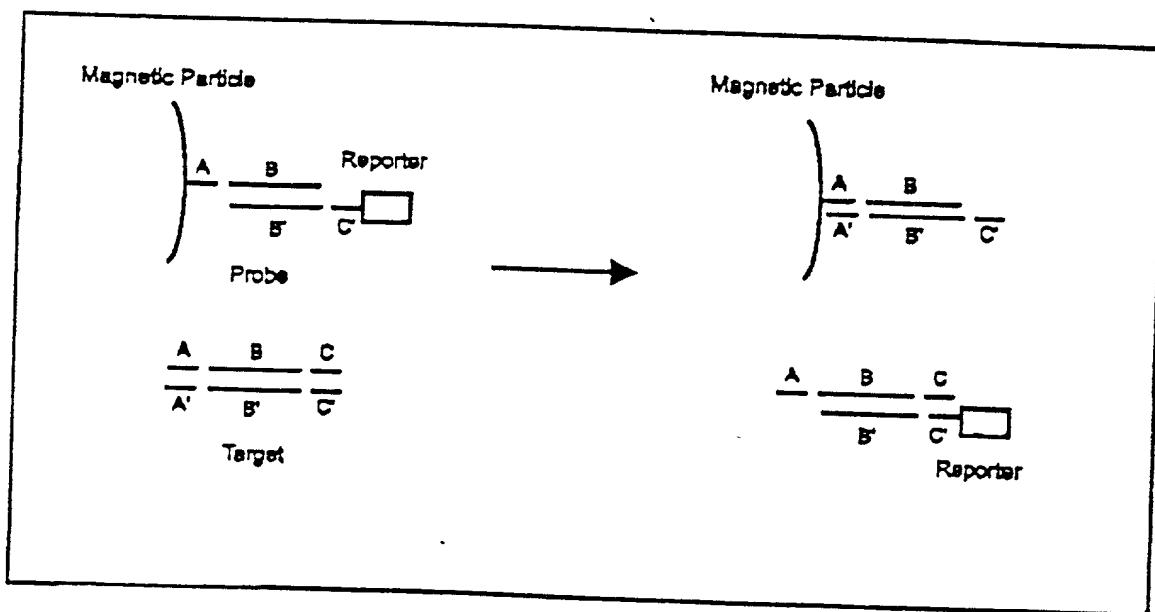
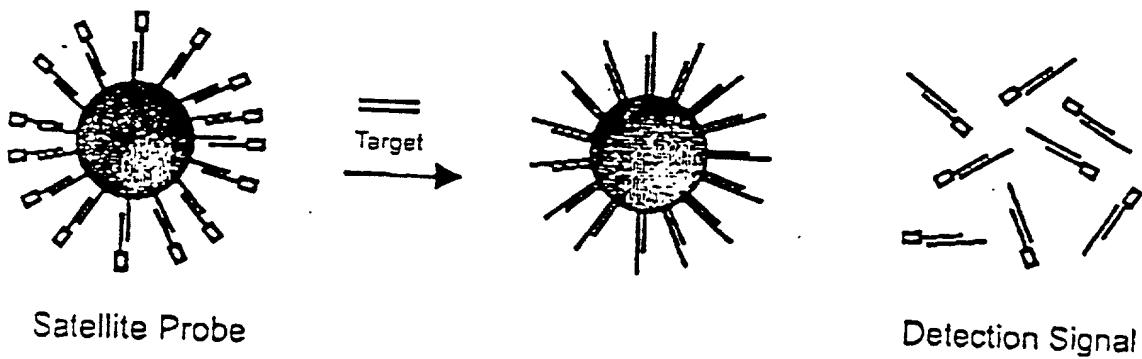


FIGURE 24

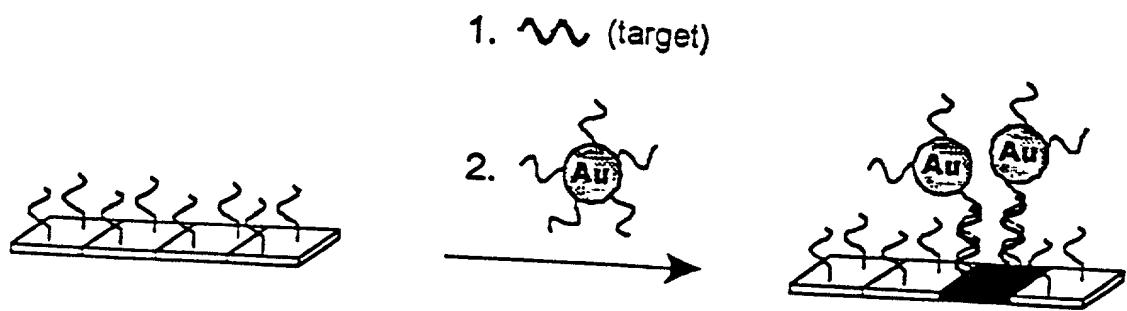


FIGURE 25A

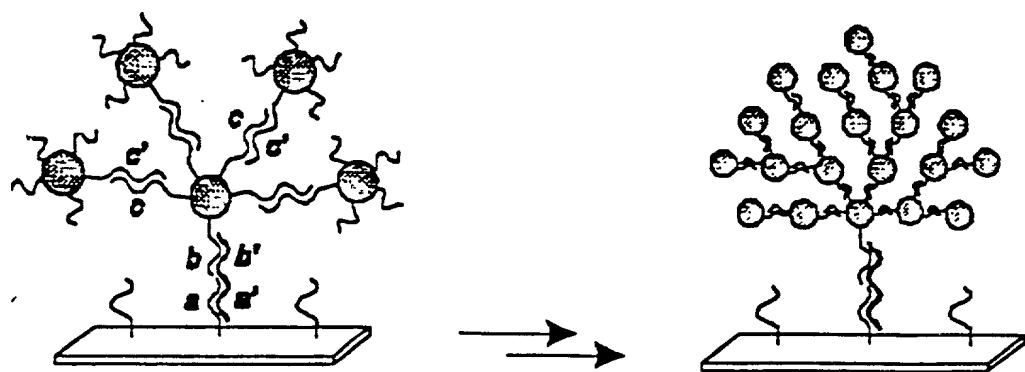
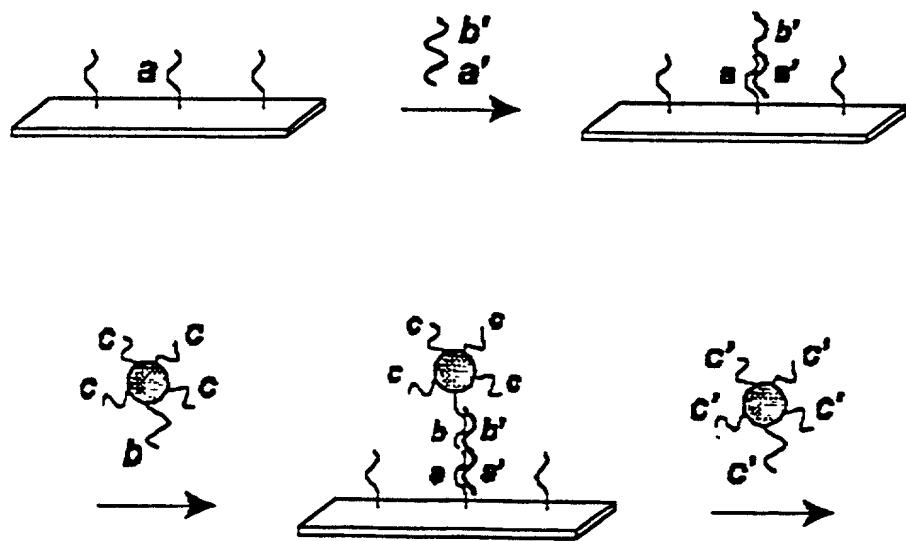
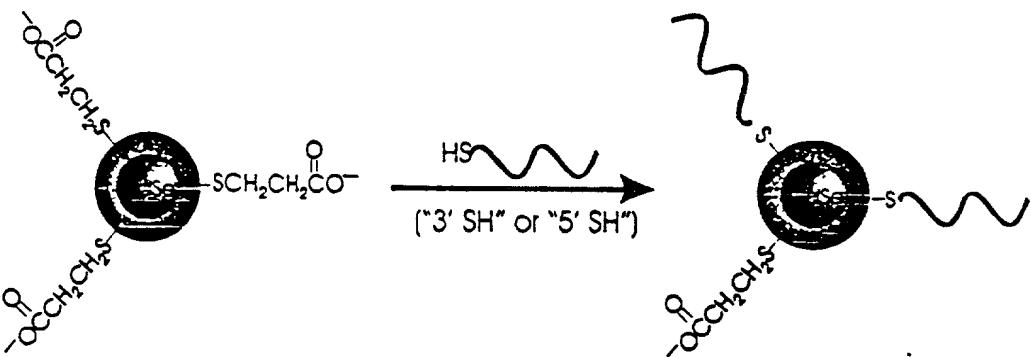


FIGURE 25B

A



B

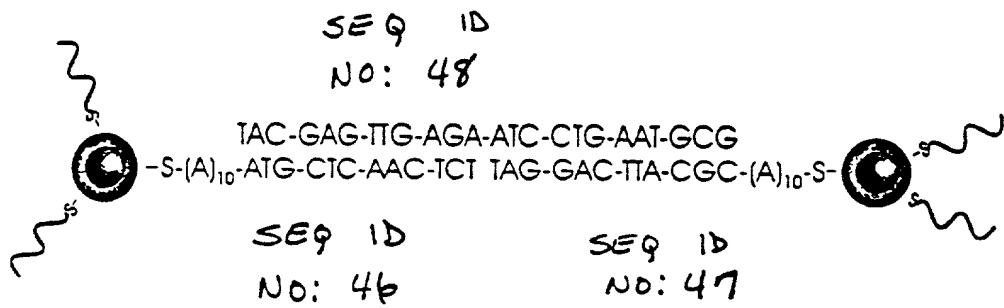


FIGURE 26

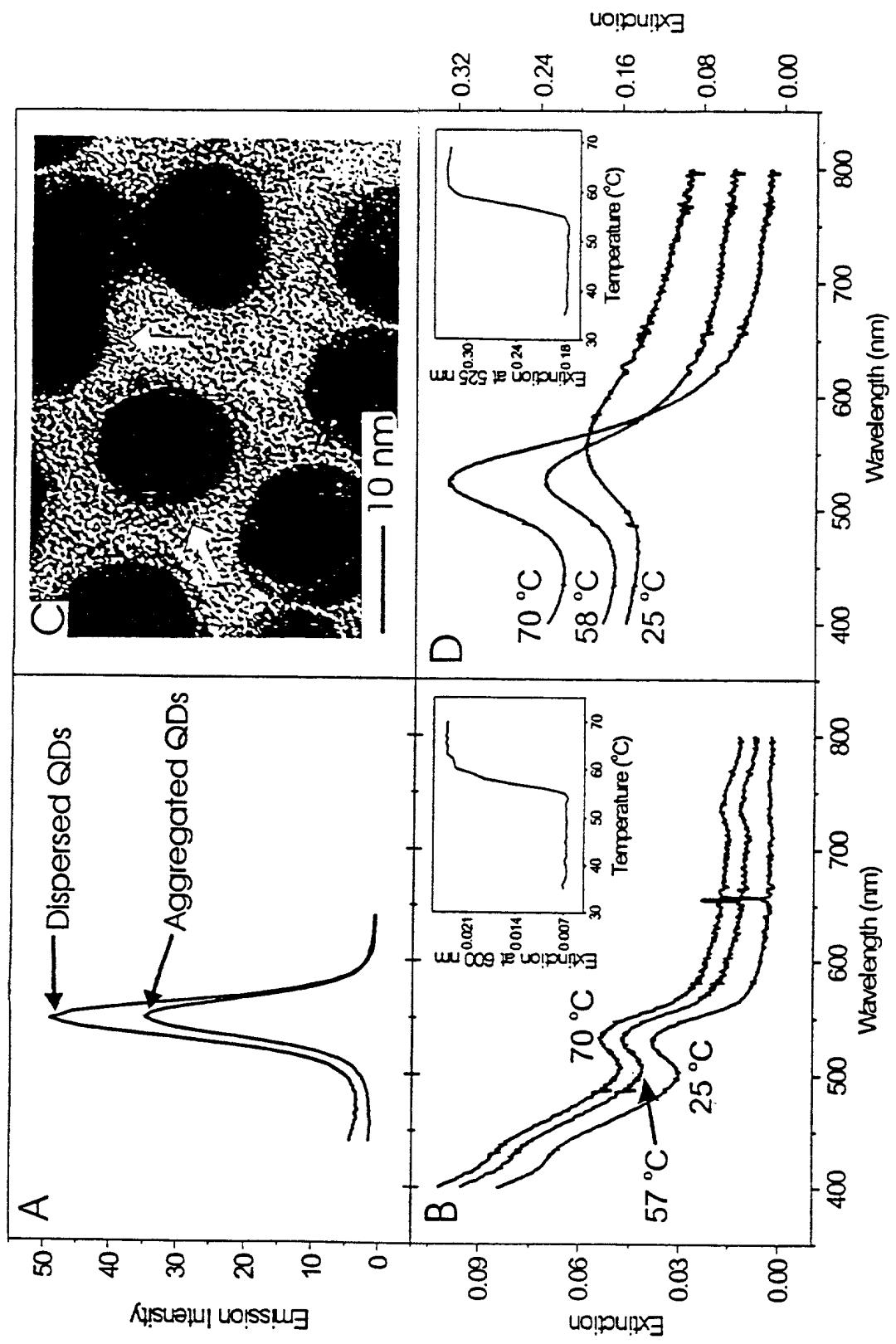


FIGURE 21

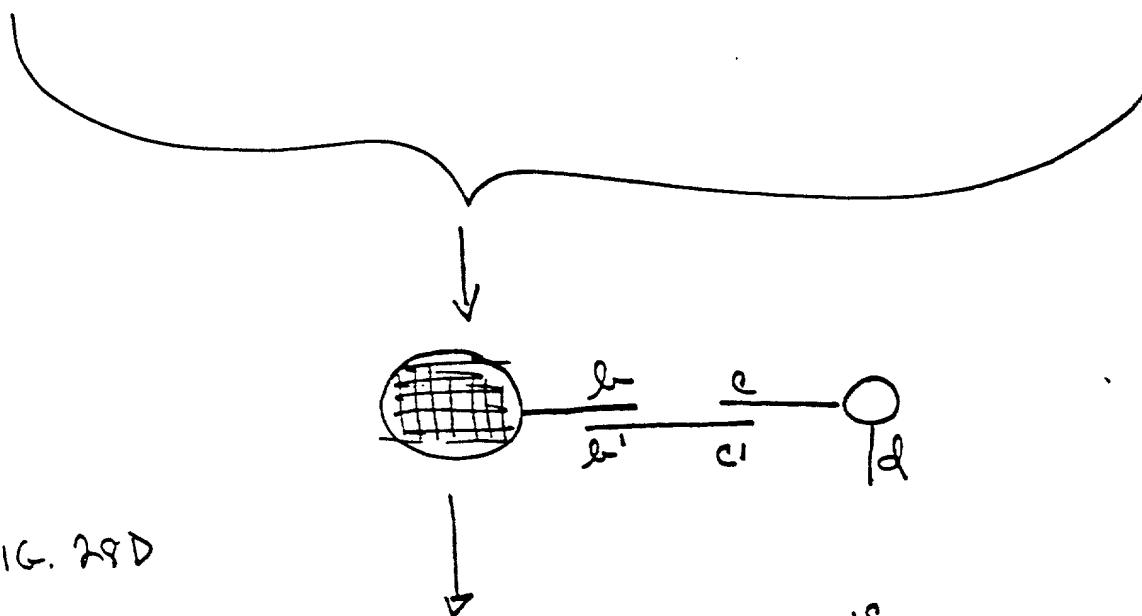
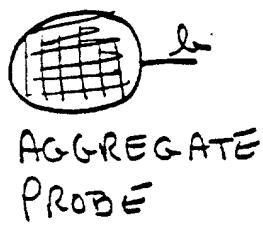
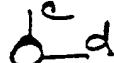
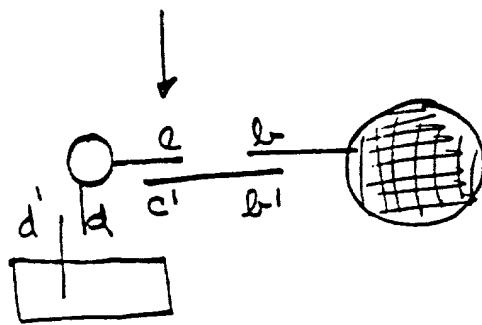
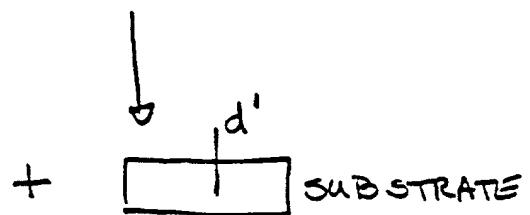


FIG. 28D

REMOVE EXCESS 

BY CENTRIFUGATION



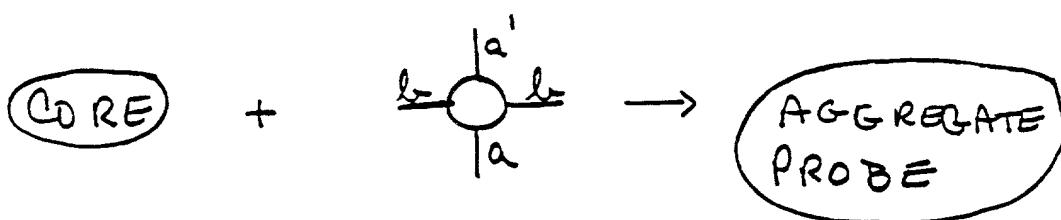
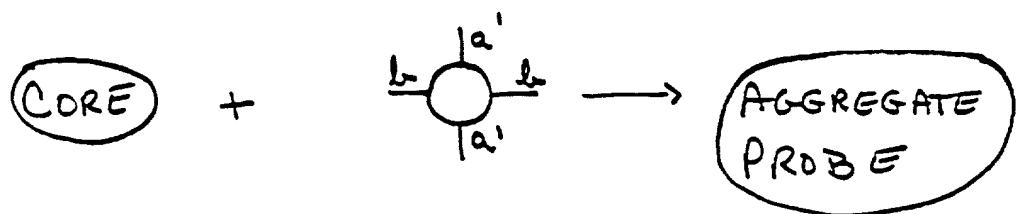
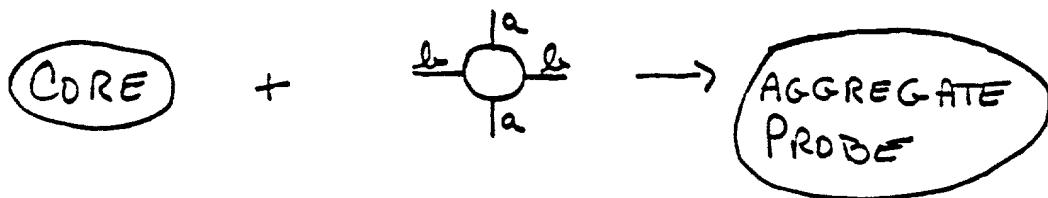
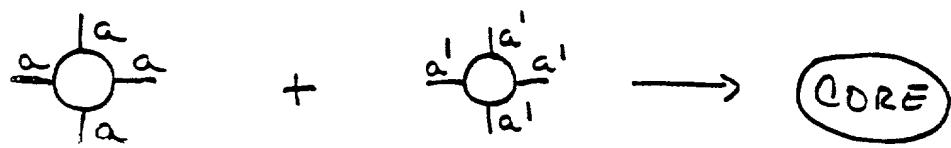


FIGURE 28A

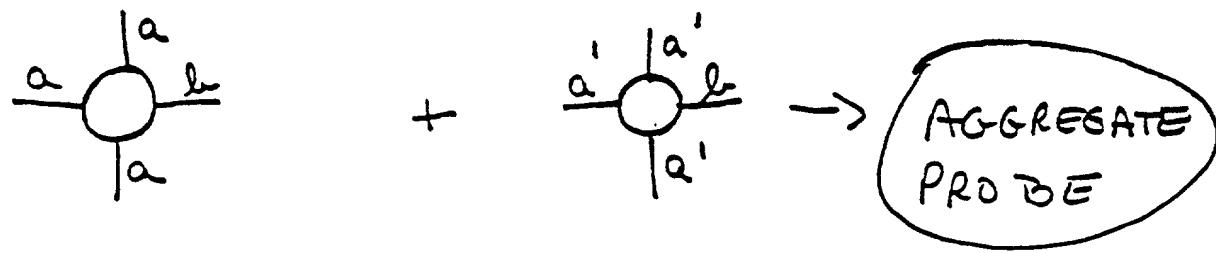


FIGURE 28 B

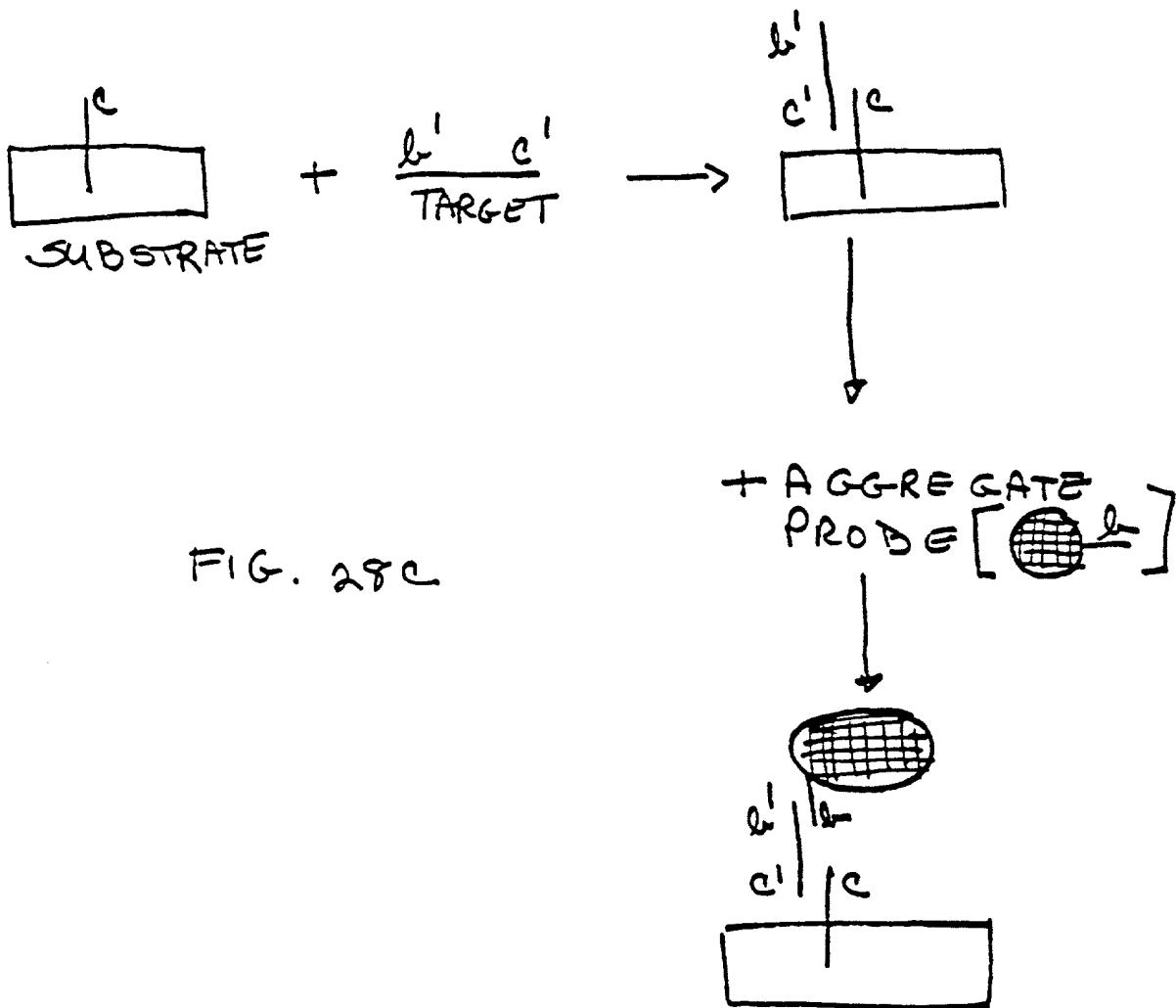


FIG. 28 C

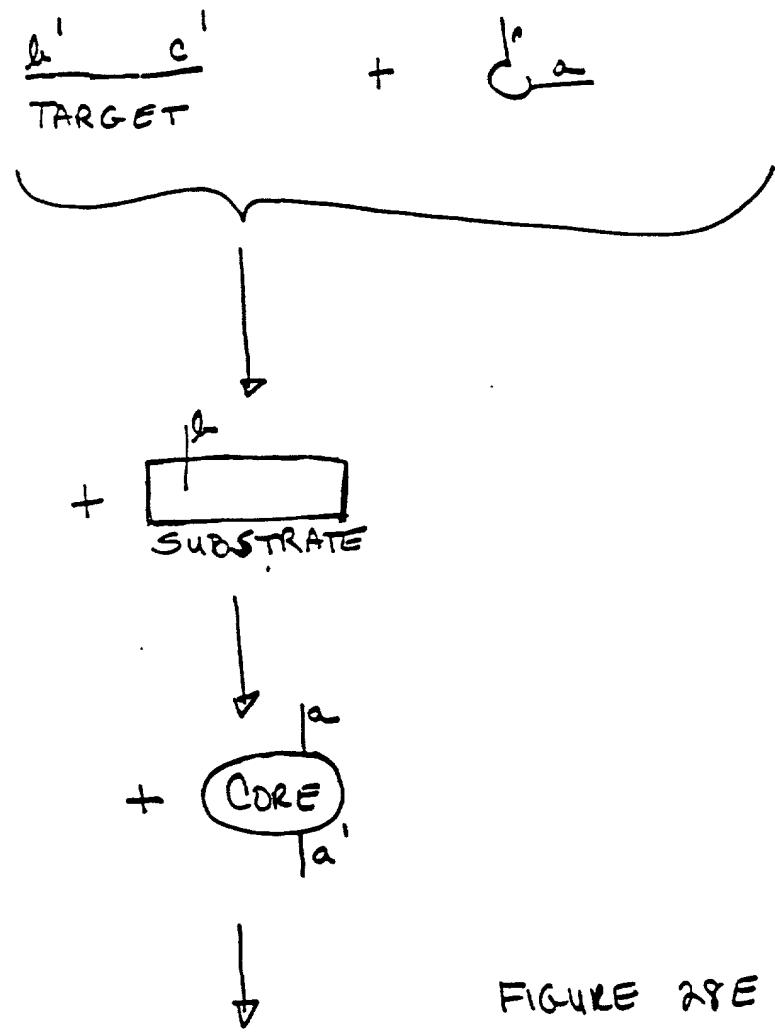


FIGURE 28E

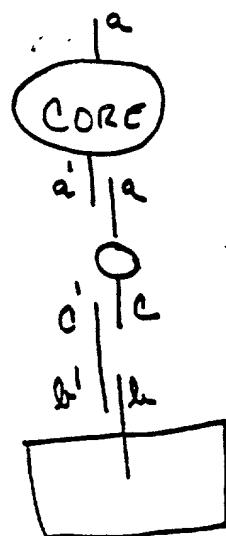
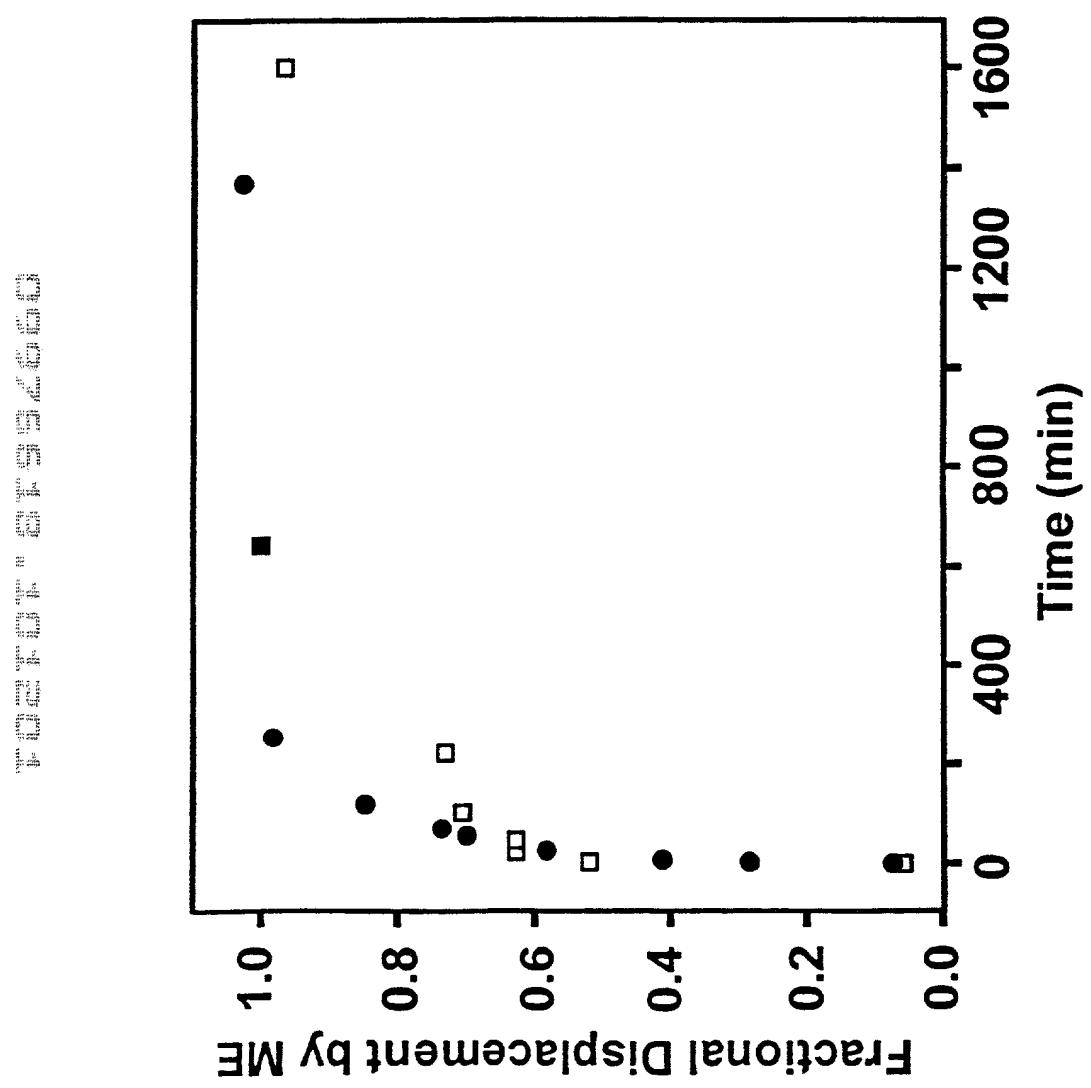


Figure 29



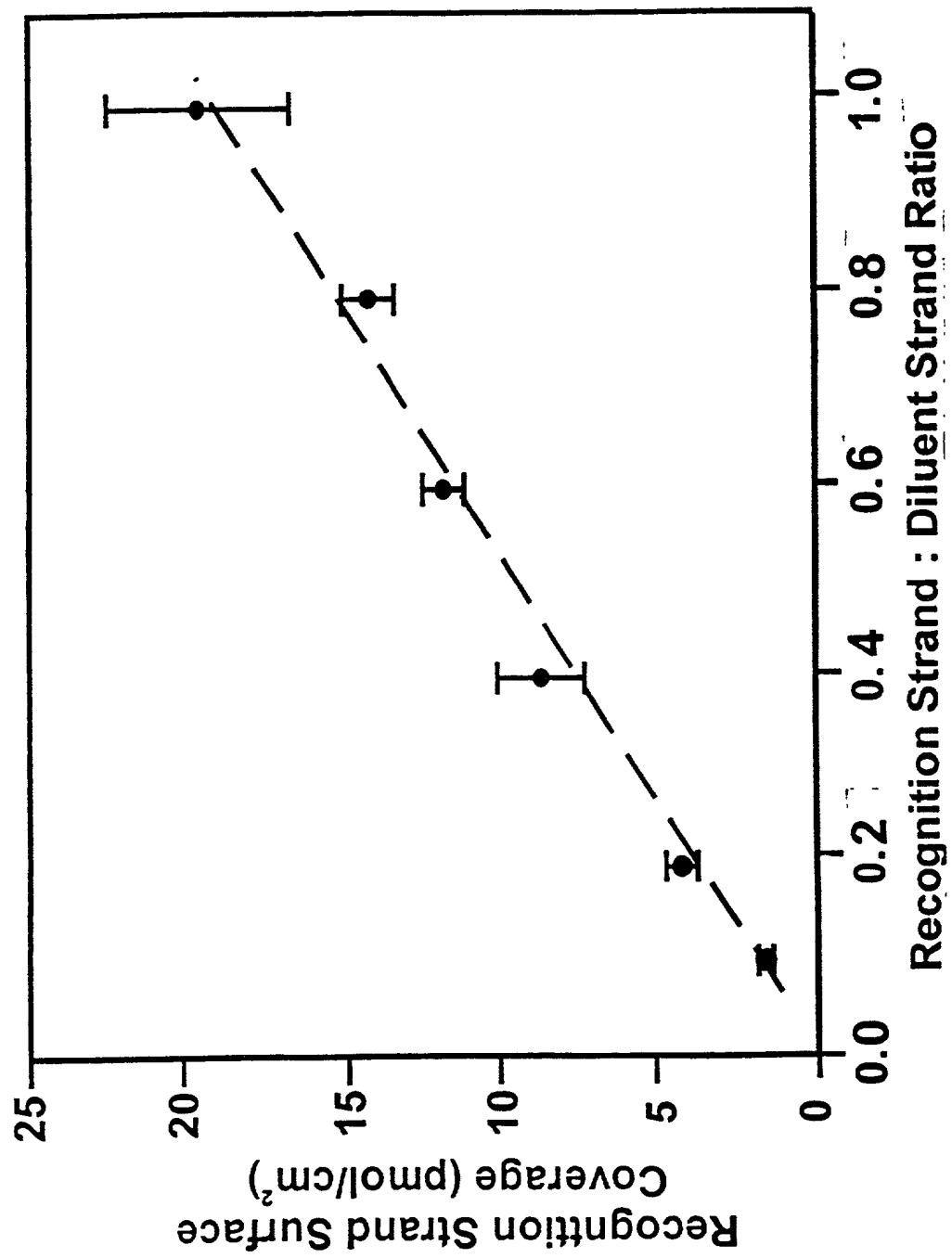


Figure 30

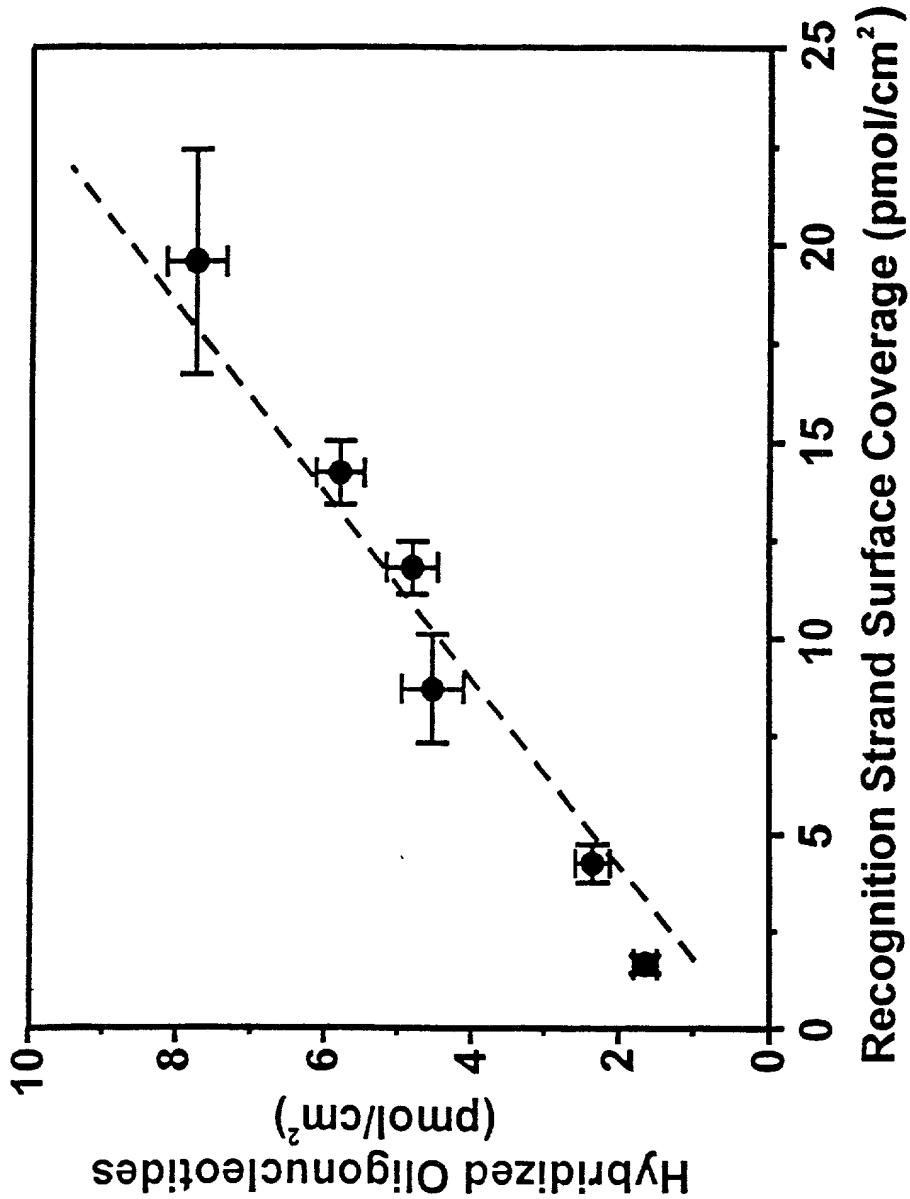


Figure 31

[SEQ ID NO:56]

5' GGA TTA TTG TTA---AAT ATT GAT AAG GAT 3'

— CCT ANT AAC AAT TTA TAA CTA TTC CTA

[SEQ ID NO:57]

[SEQ ID NO:58]

N = A (complementary),  
G,C,T (mismatched)

G,C,T (mismatched)

G,C,T (mismatched)

1.  (target DNA)

2.

The logo for the University of Arizona, featuring the letters "AU" in a stylized, blocky font inside a circular emblem with a wavy base.

Ag<sup>+</sup>  
hydroquinone  
(pH 3.8)

Ag(s)  
quinone

Figure 32

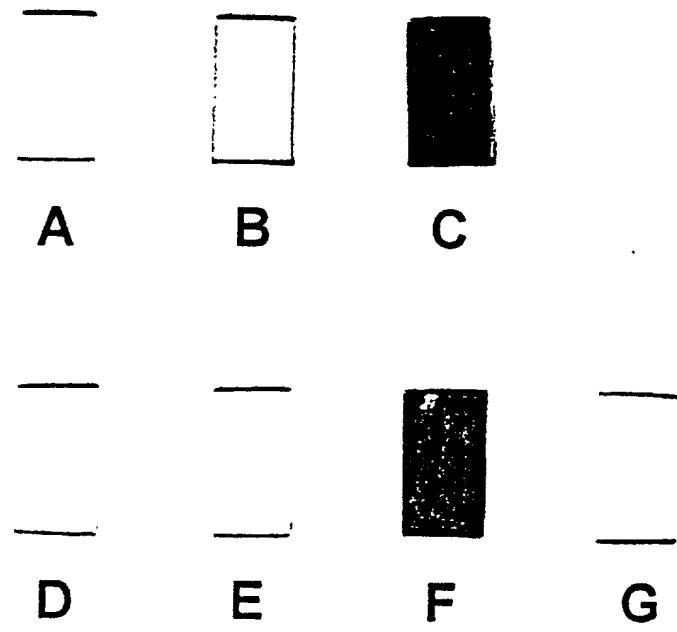


Figure 33

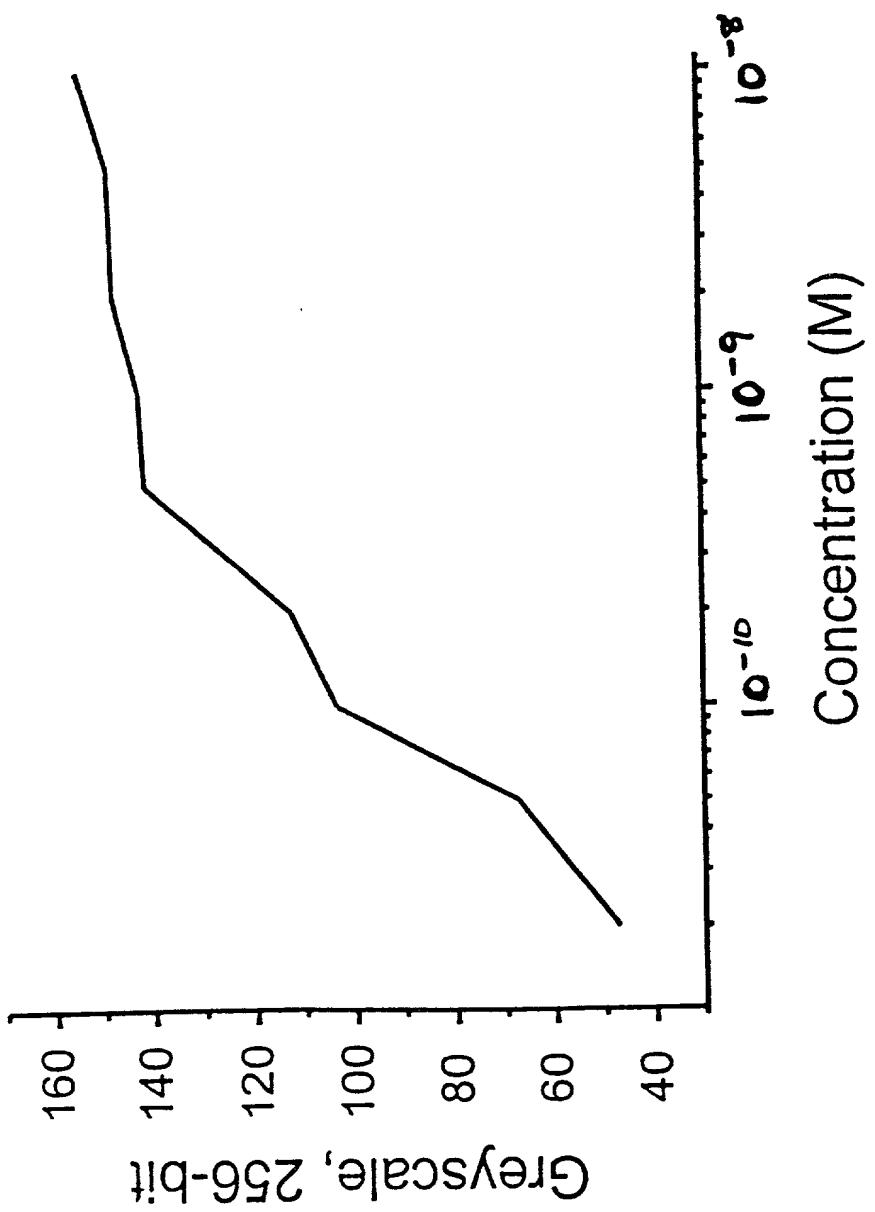


Figure 34

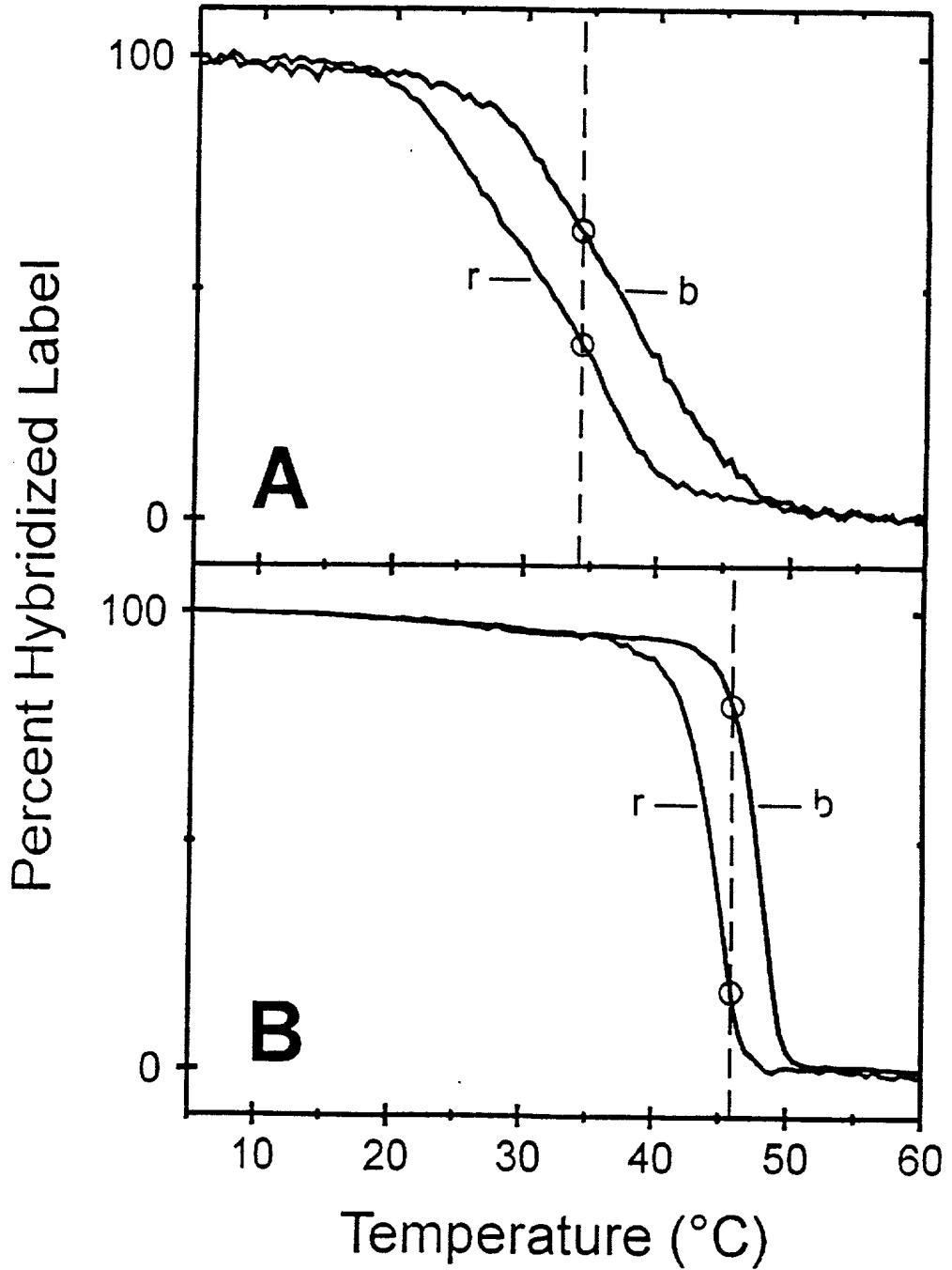


Figure 35

FIG. 36A

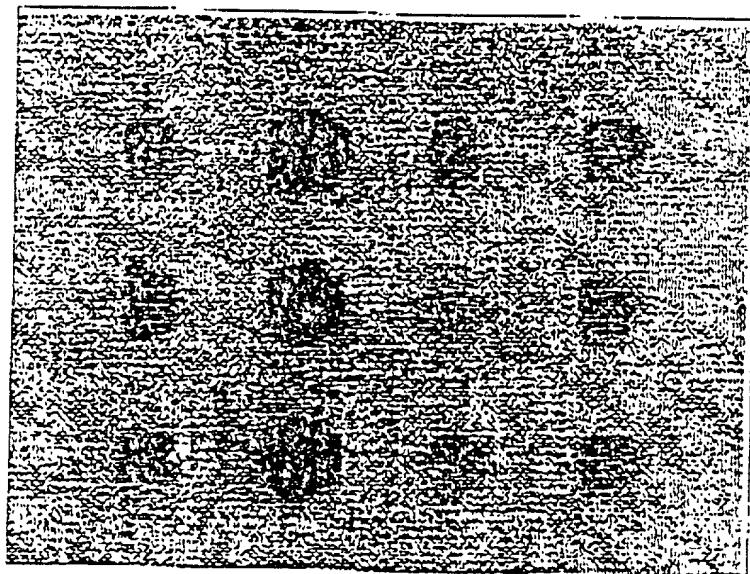
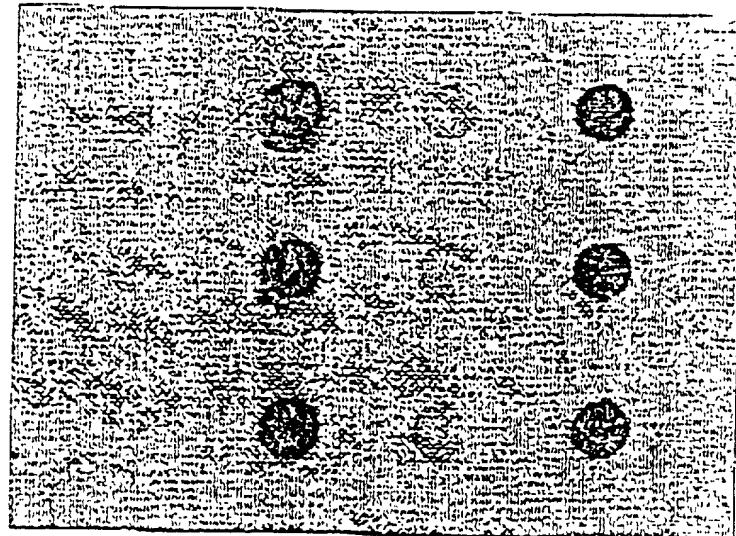
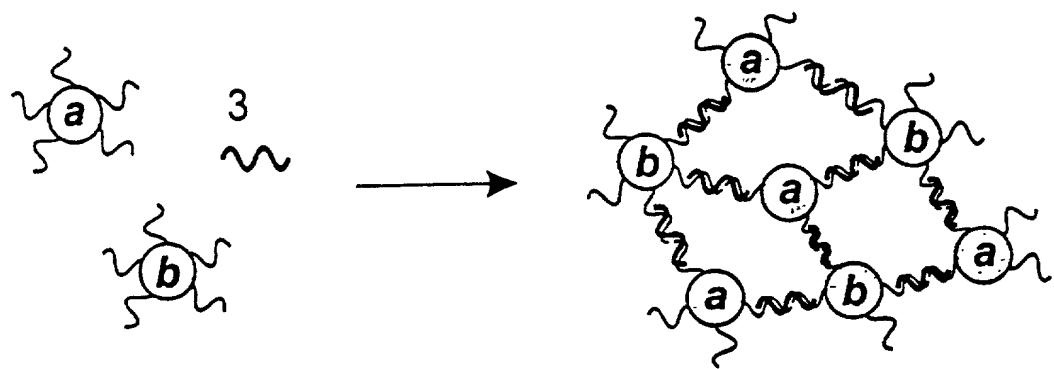


FIG. 36B



C A T G

**A**



**B**

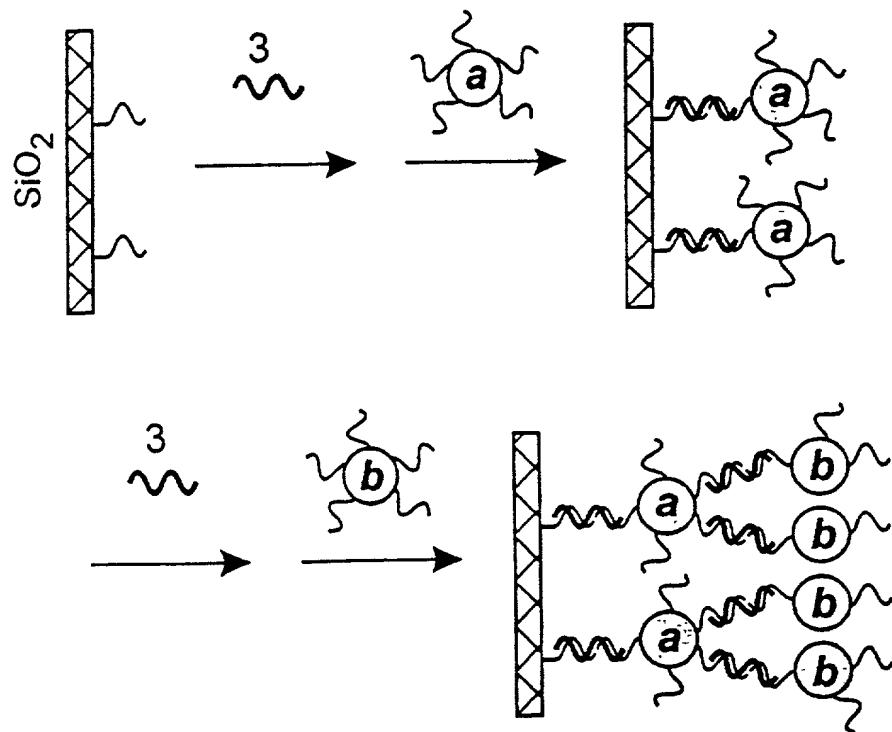


Figure 37

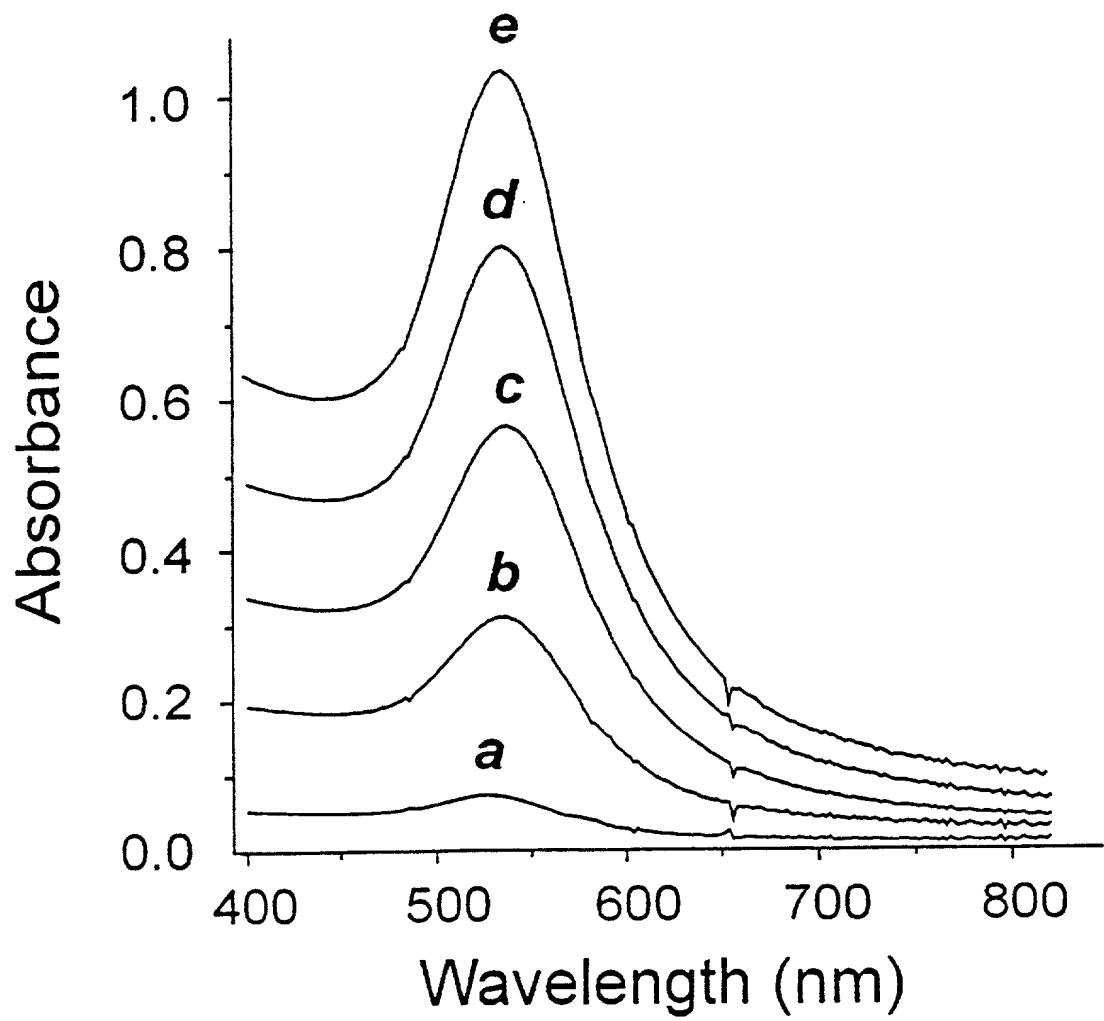


Figure 38A

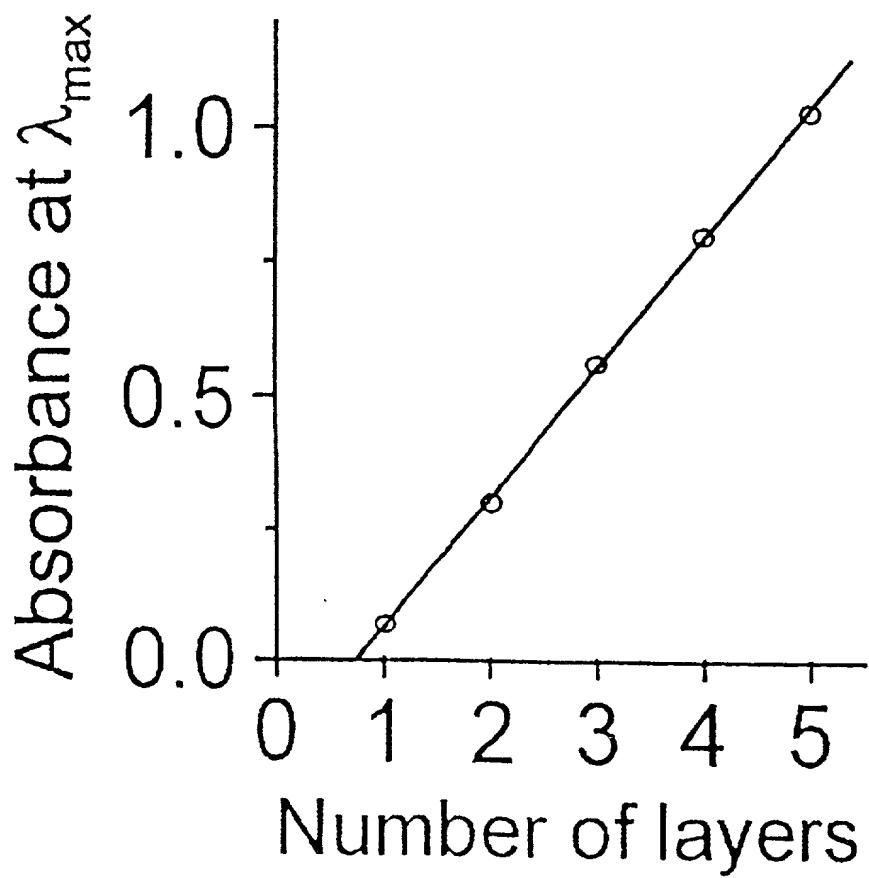


Figure 38B

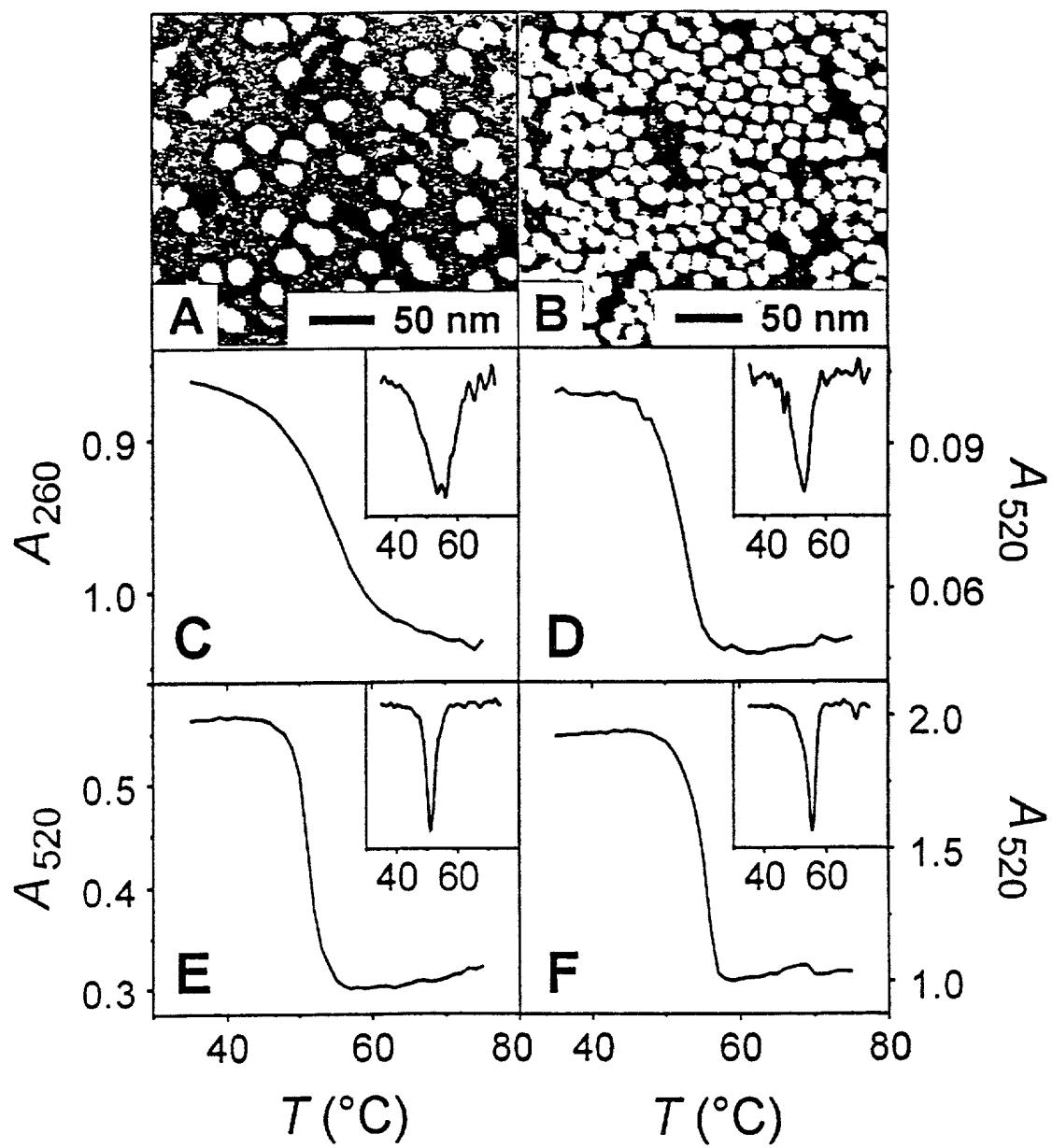


Figure 39

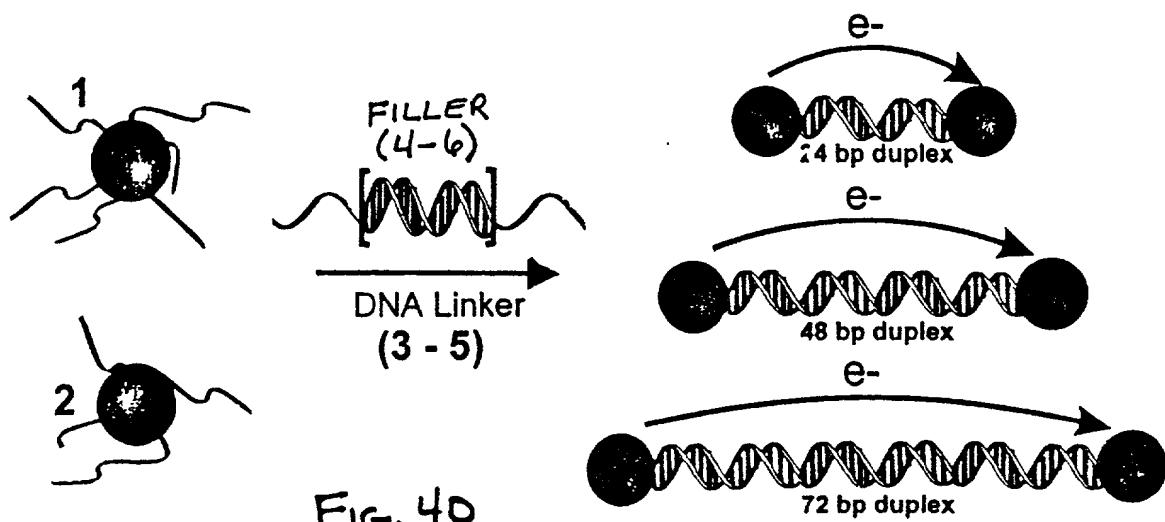


FIG. 40

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

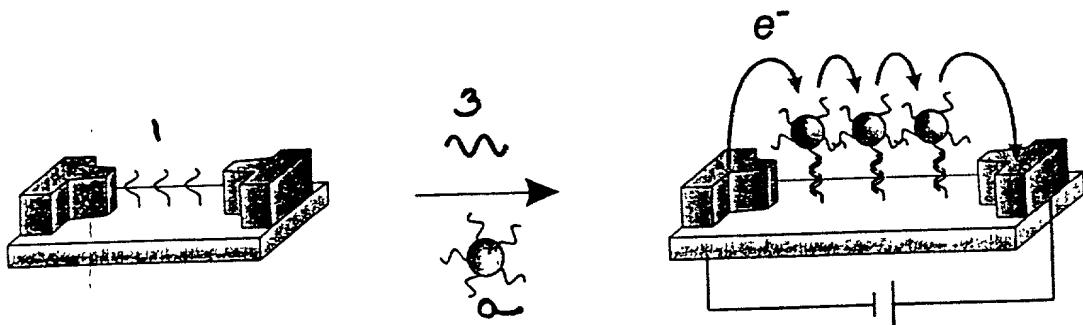


FIG. 41